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THE
TIMBER-TREE
IMPROVED:

OR THE
Best PRACTICAL METHODS
OF
Improving different Lands, with proper
Timber.

AND

Those Fruit-Trees whose Woods make
the most Profitable Returns to their Owners,
according to the newest Inventions, by the
Plough, Harrow, and other Methods most
approved of.

IN TWO PARTS;

VOL. V.

By WILLIAM ELLIS.

A Farmer of Little Gaddesden, near Hempsstead, in Hertfordshire.

L O N D O N:

Printed for, and Sold by T. OSBORNE in *Gray's-
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JAN 1968



T H E

P R E F A C E.

TH E Subject of Forest and other Trees I am very sensible has been set forth by able Hands: But as my Residence is much amongst them, and I employ Workmen in their Management, in a Country most famous for such Artificers, I may have come by some useful Secrets which others have missed: Besides which, I yearly travel hundreds of Miles, on Account of the several Sorts of Books, I have, and intend to publish; whereby I have an Opportunity of acquainting myself with the Methods used in several different Counties: And thereby am enabled to communicate new and practical Methods relating to the Improvement of this profitable Art: An Art, which has hitherto greatly suffer'd by Authors being unacquainted with the

A 2

Nature

The P R E F A C E.


Nature of the Plough, &c. which certainly are the best Instruments for propagating the Seeds of Timber, and some Sorts of Fruit Trees, and will thus so establish their first Principles, according to their own genuine natural Tendency, as will surely give them every Year a superior Advantage in the Growth and Goodness of their Wood, even to the very Time they are cut down. A Matter of such Consequence, that an Acre of Land so planted has been worth several which have suffer'd by an Error in their Beginning or Foundation.



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T H E
T I M B E R - T R E E
I M P R O V E D, &c.

C H A P. I.

The Nature and Improvement of the OAK.

THE Oak, of all other Trees claims the Priority of Regard in this Nation for its many transcendent Uses ; but above all for Ship-building, which, indeed, are the Walls and chief Fortifications of this Kingdom. And however remiss and indolent we have been of late Years in cutting down, and not planting again, this most excellent Timber, as may be seen in *Wing Park*, and many other Places with an Eye of Pity ; yet of late, through (I presume) the several printed *Items*, published by Men under a Concern for their Country's good ; some of our discerning, able Men, have received such Convictions, as have provoked them to sow and set Acorns, or plant young Oaks in many Acres of Ground. A singular Example of which, in these Parts, is the most noble Duke of *Bridgwater*, who is certainly one of the greatest Conservators of Wood in this Kingdom.

The

The Oak agrees with almost all Sorts of Soils, but grows best in the richest Grounds, and is the longest liv'd Tree of all others; yet is its Date determined shorter or longer, as the Nature of the Earth is wherein it grows: In Clays it is more tedious, as its Roots obtain their Food with more Difficulty; but then its Wood is most serviceable.

In sandy, chalky, or gravelly Grounds, they grow much sooner, from the light, loose Texture of these Earths, that gives an easy Progress to the Oak's Roots, which brings on its Maturity sooner than the stiff, cold Clays will, and therefore they are never so large in this loose Soil, as in the more close; but then its Grain is clearer and smoother. This Tree obtains a firmer Footing in the Ground generally than any else; for it's rarely found that an Oak is without a deep tap Root; this in a rich Soil has been known in thirty Years to get a Foot Diameter in Body, and when it is arrived to this Bulk, it then thrives much faster, by Reason of its larger Body and Head, which now is capable of being shaken by the high Winds, that strains its Roots and let in the Benefits of the several Sorts of Weather; and therefore it is a Sort of Rapine to destroy such young thriving Trees, that get at thirty or forty Years of Age, more in one Year, than they did when younger in several; especially if at first they take Root towards the Top of the Ground; for, in my Observations, I seldom ever saw a thriving Oak, whose Roots in the Beginning took deep in the Earth; and therefore I think myself more than ordinarily obliged to enter a *Caveat* in this Place, against the fatal, but too common Practice of planting, sowing, and setting too deep, which surely retard the Oak's Growth, and hinder its Magnitude: Whereas this, above all other Trees, ought to enjoy all the propitious Benefits that can be given it, on Account
at

at best, of its tedious Growth, before it is rightly fit for Ship or other Buildings.

I have two Sorts of Oaks growing in my Grounds, which I call the short spreading Oak, and the tall, upright, taper Oak, both which grow very well, if planted at first high enough, whereby their Roots may be obliged to seek their Food from the Top and best Part of the Ground: And here, if any is so curious to prefer Plantations of one Sort before the other, it is only sowing or setting the largest Acorns of the different Trees; or if there are Walks or Rows to be made of them, the Distance in this Respect must be allowed accordingly; for the spread Oak requires as well fifty or sixty Foot asunder, as the other forty or fifty; and this Distance will very well admit of the growth of Underwood, that may be fell'd at every twelve Years End to great Profit, especially if it be Sallow or Ash; these two being the most advantageous of all others for their quick Growth, and the many Uses their straight Poles may be converted to, as hereafter I shall observe when I write of Underwood: Or if the Sallow alone is planted altogether with the Oak, it will be found most agreeable, because this Root runs not very deep nor broad, which will give leave to the Oak to make his slow Pace with little Interruption from the quick Growth of this most profitable Underwood: And therefore it is, that neither Beech, Oak, or any other standard Tree, should be permitted to grow in Company with the Oak, because of the great Prejudice that may in Time ensue from their quicker mounting into the Air; and then it's likely the Oak will suffer in its low Head, by the Drip of their taller ones; which Majority, wherever it happens, they will be sure to maintain, from the great Advantages they enjoy, by the Sun, Air, Rain, and Dews, that ever will be most propitious to the highest Trees, by the free

and uninterrupted Extention they meet with, to receive the Sun's Attraction and nourishing Heats on all Sides of their spreading Heads: That then will cause them to perspire, and sweat out their crude and noxious Juices in the Day Time, which they imbibe and drink in by Nights, through the many Pores of their spongy Barks, Leaves, and Fruit; and it is thereby that Trees subsist in a true Regimen of Health and Prosperity, while the low-headed, underline one, grows mossy, scabby, knotty, and stunted, for Want of a free Enjoyment of those salubrious Benefits. And this grand Conveniency not only belongs to the Oak, but, indeed, all Sorts of Trees whatsoever: And it is here that the Vegetable is obliged to receive and take in by Nights and foggy Days, those pestiferous and insidious Particles of the Air, which are great Enemies of their Life, and would likely end in their Destruction, were it not for a due Evacuation of the same, by a free Perspiration through the several Parts of their different Bodies, by the Sun's most powerful Influences; that by Degrees brings on such a Rarefaction of the Sap and Juices, as to cause them vigorously to discharge their phlegmatick Crudities, that the Tree alternately receives.

In order then to raise great Numbers of Oaks in the best Manner; I shall observe, that in a plentiful Mast Year, due Care should be taken, about the Beginning of *November*, or sooner, to collect and get the largest and foundest Acorns (for the Biggest of all Seeds are best) when they fall from the Tree through Ripeness, for the full Maturity of them is a main Thing; when enough are gathered, the Disposal of them is next to be considered. If Conveniency allows them to be sown at the best Time of all, they ought to be got into the Ground as soon as possible, upon the finest and well dressed mellow Ground, that has been under a Preparation for this Purpose,

Purpose, the whole Summer, if not the Winter too before.

Various are the Ways that have been practised in this Work, according to the Ground and different Opinions of Men; but as I take it to be my Business at present, if I can, to shew the cheapest and most profitable Way to obtain a Wood of Oak; I shall therefore begin with sowing Acorns in broad Lands on this hollow Earth. Let the Land be ploughed into very small Thoroughs immediately before the sowing of the Acorns; then take two Bushel of them, and sow out of a Seed Cot, by the broad Cast of the Hand, then harrow them in at Discretion: This Quantity, if they take, will more than furnish an Acre of Ground; but here is Allowance given for Incidents from Fowls and Mice: From this Management, perhaps, there will arise an Objection, that this large bodied Seed will not be haled or covered, because in broad Lands there is not a sufficient Hollowness of Ground to cover their Bodies from the Injuries of Weather, Fowls, and Mice. To this I answer, That there is Depth enough between the Thoroughs to envelope and cover most of them, by Means of the harrow Tynes, insonuch, that if these or the greatest Part of them grow that are covered, there will be a sufficient Number to stock the Ground if the rest were all carried off; but that Danger is not so great, if we consider that in a plentiful Year of Mast, and at that Season of *October* or *November*, there is full Provision for Birds and Mice; not only from this Mast of Oak, but from the many Corn Fields that then abound with great Store of scartered Grain from the preceding Harvest, which by consequence will divert their Search and Quest after these: And if a Fowling-piecc is employ'd a little, the Danger will be the less, for the loose Ground will readily receive and draw in the Acorn, and then the Hazard is mostly over from these

these Sort of Enemies, and also from the Weather, because the Radicle having taken the Ground before before the Severities of the Winter, it will thereby be enabled to maintain itself from Winter to Winter, till it becomes a sturdy Oak.

The next Thing is, to have a strong Fence, that no Sort of Cattle may possibly break in; and then there is no more to be done, but to leave this sowed Ground to Providence, and there is no Fear of the best and cheapest of Woods.

Remarks on the preceding Method.

THIS Way of sowing the Acorns and harrowing them in, is surely the nearest of all others to that of Nature; which always receives upon, and nourishes the Seed from the very Surface of the Ground, as being the richest Part of all the Earth; is nearest, and more ready to take in those Benefits that the Sun, Air, Rain, and Dews communicate, which are the very vital Parts and Nurses of the young Oaks; and therefore the more they enjoy of these nutritious Influences, the faster they grow; and this is the true Reason that those numberless Objects that present themselves to Travellers Eyes, who will but employ them in the Views of the deep and wrong planted Bodies of Trees, are longer growing, and so become set and stunted in less than half their Time, as may appear by the knotty, mossy Bodies and brousy Heads of Oaks, Ashes, and Beeches, &c. and that in some of my own Fields, which was at first, I suppose, by their being too deep planted, that obliged their Roots to make their Way into, and seek their Food amongst the red Clays, that lie about two Foot lower than the Surface; while several others, that are planted high and near them, flourish and grow in clean upright Bodies and thriving Heads: This has brought on necessitous Consequences,

quences, that has obliged many Owners of such Trees to cut them down in this their stunted Condition at less than half Age, which is the Time that a well planted Tree runs and grows more in one Year than formerly in several, as I said before; by which may plainly appear the great Value, Moment, and Importance of high sowing and setting at first the Seeds and Sets of these Timber Trees; because an Error in the Beginning is the worst of Errors, as being most difficult to redress, and often irreparable; and, I think I may say, that wherever a Seed or Set at first is put into the Ground too deep, it will never make a good Tree of any Sort; therefore I shall add the following Directions, *viz.* In case you are to improve a low, wetish, vale Ground, by raising an Oaken Wood on the same, then with a Foot or Swing Plough raise the Land up to lie in half Acres, whole Acres, in six or in eight thorough'd Lands as your Fancy leads you, and proceed thus. If it is a sward, grassy Ground, it must be first ploughed into broad Lands for the Turf to lie and rot from *Michaelmas* to *Lady-Day*: In *April* ridge it up, in *June* harrow and lay on your rotten Dung, Virgin Mould, Marle, Fowl Dung, or other good Dressing, for the Soil cannot be too rich for this Purpose: Then plough it directly in the same Way the last was done, that it may lie, mix, and incorporate with the Earth against your Season, which is to be at *Allbollandide*, the Acorns then being fit to gather full ripe by the Hand; for these Sort of large Seeds must not be beat off the Trees, as many ignorant People do, and so hinder the Tree from bearing some Years after, and also damage the Fruit to that Degree, by the Blow and Fall, as either to hinder their taking Root, or else to cause a half-grown dwindling Oak. Now the last Ploughing you are to perform, is to be done by casting down, or beginning first at the Outfides of the Land. But
just

just before you thus plough, you must sow one or two Bushels of Acorns all over the half-Acre Land broad Cast, and plough them in under Thorough, for this Soil generally shatters on a Frost, and will easily let out the young Spires : When this is done, your Work is over till you enclose it from Cattle, for in this Management you need not weed at all, but let the Grass grow as fast as it will ; the Reasons for which I shall hereafter shew.

But in the Chiltern or Hilly Grounds, the Case must be alter'd ; for to bring such into a fine Tilth, you are first to plough it into broad Lands at *Allbollantide* with the fallow Wheel Plough, which let lie till *Lady-Day* following ; for by that Time the Ground will get rotten, then harrow it plain, and directly lay on your rotten Dung, or Hen-Dung, Horn-Shavings, Hoofs, or Rags, or Coney-Clippings, or Sheeps-Trotters, or Soap-Ashes, and immediately bout the Land a-cross with the fallow Wheel Plough : Thus let it remain till *Midsummer*, when it must be bouted again a second Time. At *Michaelmas* back-bout the Ground, down, and at *Allbollantide* harrow it plain : Then take those Acorns that have fallen down of themselves through Ripeness on a soft Ground, or gathered ones, and sow broad Cast three or four Bushels on one Acre, and plough them in very shallow under Thorough ; for these Seeds are rather too large to be harrowed in, unless they be sowed on a tough Ground, and on a tough Tilth. By these two Methods the Acorns are secured from the Beaks and Claws of Fowls ; and if you have a Mind they should be so from Mice and Worms, in *January* following slack forty Bushels of stone Lime on one Acre, and sow it out of the Seed Cott broad Cast all over the Ground ; or, twenty Bushels of Soot on an Acre, and it will drive down the Worm, and discourage the Mice : Also by these several Ploughings and Harrowings, the

the Ground is got into so fine a Tilth, that there will be no Danger of burying the Acorns ; because the Earth will be so loose as easily to let out their Spires ; for the bigger the Seed, the sooner it buries in a stiff clotty Earth ; witness the Horse-beans, that in red Clays are often lost, by reason their broad Heads cannot make their Way out : But when they take to grow well here, you may afterwards draw out what under-line Plants you please, and only leave the Master thriving one, which will thus make a cleaner, straiter, and taller Tree by this its spontaneous Growth, from their natural Tap and other Roots, than any transplanted one whatsoever.

The Sap of Trees stirs at three Seasons of the Year ; in *April*, at *Midsummer*, and at *Autumn* : At the two first the Bark will peel, but it won't between them Times. As it lies in all Parts of the Tree all the Winter, at *Spring* it makes Shoots, Leaves, and Blossoms ; at *Midsummer* it makes Fruit ; and in *Autumn* another small Shoot. To prove the Sap is always in the Tree, an Oak was cut down in Winter, and next *April* the Sap was so fluid in it, that it was peeled as easy as others piftell, tho' it was cut in several Pieces as it lay on the open Ground.

A Second Way

MAY be done by planting the Acorn at every forty Foot Distance, in Rows or otherways. First, make a Hole of three or four Foot Diameter, and a Foot or two deep ; lay the Earth about the Edge of the same in small Parcels, the Beginning of Winter, for the Frosts to shoal and sweeten against the Spring : Or, if you are to plant these Holes at *Allbollantide*, then they must be prepared accordingly before ; so that either then, or at Spring, they may be a fine Tilth and loose Order ; and when

when so, thrust three, six, or nine Acorns in the Circumference of each Hole, about half a Finger's Depth, which by the next Year will be up, and then may be drawn all that are superfluous, and only the Master-shoot left; at this Rate there will be twenty-seven Oaks left in a square Acre of Ground, at one in each Hole: After this the Ground about the young Tree must be carefully houghed several Times a Year, for ten or twenty Years, and Fences made about each Oak.

This Way will certainly do very well, but the excessive Charge that attends the yearly Management of the Oaks for some Years, is seemingly to me a little discouraging, tho' in Process of Time, I believe, it will pay a Man in Proportion, to fifteen or twenty Shillings each Oak at twenty Years End, provided their Side-Shoots are duly trimm'd, and Underwood not planted amongst them till six or eight Years be past, lest it get up and top the young Oaks to their great Prejudice.

Remarks on the Second Method.

THIS Way has this Advantage, that the Roots of the Acorns has wider and looser Room to run into than the former; and therefore, I must needs say, is an excellent Method; because the Hollowness, Fineness, and Sweetness of any Earth, contribute greatly to the quick Growth of any Vegetable therein planted; and were it possible always to keep their Roots growing in such a loose Mould, an Oak, or any other Tree, would certainly attain its full Bulk in half the usual Time it does: This I have in Proportion seen experienced by a Tree's Growth, that was set in a Pit or Hole of loose Earth of a large Extension, which out-run all the Trees in Quickness of Shoot that ever I saw: Here the Acorn may be set as shallow as a Person thinks

thinks fit, and the Ground about them, for twenty Years together, houghed and always kept clean from the Tyranny of choaking Weeds : And here as the Tree grows up, should a Person annually observe to rub the Body with a Hair Cloath, or Back of a Knife ; the first Application to be made use of in dry Weather, the latter in wet, which will dilate its Bark, and open its Pores for readier receiving the Sun's Warmth, and the Rain's Moisture, that will feed and assist a Tree more than is generally thought of : It is this that keeps off that grand Enemy the Moss, which will inevitably overtake all Oaks little or more, that want this Sort of Husbandry.

These Holes may be made in Rows to answer both Ways of the Field, that the Plough may thereby have Room to pass and repass the cross and long Ways of this Ground the better, and for the great Conveniency of ploughing and sowing any sort of Grain, or Grass Seeds on the same for the first ten Years of this Plantation, till the Oaks have got good Roots, and their Heads high enough in the Air as to be out of Cattle's reach : But then here may arise an Objection, that the young Oaks will surely suffer, if not ruined, by the Horse, Cow, and Sheep, that may be turned into this Ground to feed, if the Oaks be not fenced in. To this I answer, that to avoid the great Expence of cooping and fencing each Tree, I would turn no Cattle into this Ground, but supply it another Way ; and that is, if Grain is on it, then as soon as it is got off, plough it up, and sow it in the next Spring with more Grain or Grass ; if the latter, then it may be let to grow, and mow two or three Years successively, to the great enriching of the Ground ; if again, Corn is to follow that, it's only ploughing the Land into a fine Tilth, and dress it with Dung or other Manure ; and so likewise for the Seeds or Sets of

Underwood that is to grow thereon, and furnish this Field for ever after.

Here, therefore, by a right Management, the Charge of Fencing the young Oaks about, may be saved, and the Ground altogether as well enjoyed to Profit; but then, as a Safeguard to both, there ought to be, not only an outside Hedge and Ditch, but also a good Railing within-side, by driving a large Oaken Stake at every five Foot Distance, and pinning or nailing thereto three or four Rows of Rails, about four Inches deep each Rail; this will be an effectual Guard, with the Help of a Man's over-sight now and then, and a forbidding Fence against those Night Encroachers and Invaders of a Man's Property, who make it their Business to take all Advantages of a distant Piece of Ground, so planted and sowed with Acorns, and have spoiled several Acres by their Horse and Sheeps biting the leading Shoots before the first seven Years was over, for the Lucre of the Grass that grows between the young Trees. But if a Fence or Coop was at first set about each Hole, that would not secure the Underwood from the Damage of Cattle, which afterwards is to grow between them: Whereas this inside Railing round the Field at first, will last twenty Years, and thoroughly secure both the Oaks, Corn, Grass, and Underwood, from all Hurt of Beasts, and greatly from the Rapine of Thieves.

This Method of planting Acorns in Holes, is not altogether confined to a Year, or half a Year's Preparation of the Ground, but may be done on a sudden: For, suppose I had a Mind to get a Wood of Oak, Ash, or Beech on a Wheat or other Stubble or Meadow Ground; then at *Allbollantide*, or at Spring, I would dig my Holes at forty Foot Distance, and at the same Time bring as much Virgin Mould to the Place as is necessary, and carry as much to fill up its Vacancy, which is only an Exchange,

change, but greatly to our Purpose in forwarding the Oak's Growth; or else I would mix Soot, Rabbits Dung, or Fowls Dung, &c. with the natural Earth that comes out of the Hole, and put it in again. If Grass Ground, the Turf must lie at Bottom. In this I would plant my Acorns directly; the rest of the Ground may be ploughed and sowed according to Discretion, with Corn or Grass; as I have before hinted. By this no Time is lost, and all the Encouragement that can well be given, is here made use of. Here is saved that great Charge and Trouble of Summer-waterings, that a planted Acorn does not require. Here is saved the fatiguing, hazardous Work of transplanting; and here is a Tree to come up, that will be stronger in the Ground, and grow faster than any Set whatsoever.

If the Oak is to grow in Parks or other Places, where the Herbage is to be fed by Dear or other Cattle, then sixty or seventy Foot is but due Distance for the Growth of such Tree and Grass; and by how much they are planted asunder, the more the Oak enjoys a free Air, Circulation of its Sap, and Perspiration of its worse Part, which is always more promoted and furthered in its Head, if the Side-Shoots are constantly pinch'd or pulled off, and the Ground once a Year digged about the Oaks Roots at every *Michaelmas*, and afterwards kept dish'd in a Bowl-like Manner for the better receiving the nutritious Rains.

Thus an Acre of Ground, worth but five or ten Shillings an Acre a Year, may be improved to near, if not quite, twenty, with a trifling Charge, which too plainly discovers the Indolence of many able Owners who are wanting in doing themselves and the Nation this great and good Service.

I have forborn to set down particular Calculations of the several Charges, and Expences of railing and fencing in the Holes and Field, because that is ob-

vious to every Farmer, and is of greater or lesser Amount, according to a Person's Conveniency of having Wood and Servants of his own ; or as that Part of the Country, where the Operation is performed, is nearer or further off from *London*.

A Third Way.

AND that is, when by several Ploughings and a good Dressing, the Earth is got into good Order, and lies in broad Lands, to sow the Acorns half under Thorough, and half on the Surface, as we often do Peas and Horse-Beans : At first the Man sows half the Seed all over the Piece of Ground, and ploughs them in as shallow as possible ; when that is done, he sows the other half over the same Ground, and harrows them in ; this secures one half, however, from the Fowls and Weather : But this according to the Mind of each Person ; for my Part, I am for following the Steps of Nature as close as I can, and I think I cannot copy her more nearly than harrowing in the Acorns as I have said before, that they may grow from the very Top of the Earth, as all do that fall from Trees, or dropt, and left by Fowls or Mice ; as it also is with the great Numbers of Cherry-trees, that grow in our Woods, occasioned by the Stones that the Fowls drop from their Beaks and Bodies.

Remarks on the Third Method.

I Confess that where the Ground is a true Loam, and that ploughed into a fine hollow Tilth, and that again furthered by Cart-rotten Dungs, the Acorn here may speed very well ; but without this Management, I think it is but Male-Practice, and will greatly endanger burying the Acorns ; as I knew it once done some Years ago, by a Man's following the Plough,

Plough, and straining in the Acorns every second Thorough of a Wheat Stitch, that was thus ploughed down into broad Lands, which absolutely buried the Acorns, and the Owner lost both his Hopes and Profit by so doing; because the Earth was heavy and clung for Want of several Ploughings that should have preceeded the Sowing of the Acorns; and also for Want of its being well dunged, that would have put the Ground into good Heart, and kept it hollow for the free and easy Spouting of the Seed.

A Fourth Way

IS, if Opportunity does not answer a Person's Inclination of sowing the Acorn as soon as ripe; or that the Ground is too wet and low for venturing them at that Time of the Year; then the Owner may lay them in dry Sand upon a Layer of that, then a Layer of Acorns, and so on in a Tub, Barrel, or Room, which will stop the Acorn's Growth, and make it fit for sowing in *February* or *March*, in a true fine Tilth and well dress'd Ground. In this Case, a Method ought to be adapted to the Nature of the Soil and Situation of the Place; and therefore, on such a wet low Earth, broad Lands are very improper to sow the Acorn in, because the Wets would chill and stunt the young Oaks, and hinder them from ever attaining a proper Bulk and Stature: For which Reason, when the Ground is in true Order, and in broad Lands, either with the Foot or Wheel-Plough, make a Stitch or Ridge at a Bout, and strain in the Acorns by a Man's Hand in two Thoroughs a little Distance in the Stitch; then run the Plough between, which will make a Hollow or Henting that covers and fills in both the Thoroughs at once; and so on after this Way throughout the Field; leaving between each Stitch or Ridge three, six, or more whole Feet of whole Ground that is

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not to be meddled with. This high sowing on a Stitch will very much contribute to the Preservation of the Acorn, against the Damage of Wets and Chills, that in many Grounds is the Bane of all Things that grow therein.

Remarks on the Fourth Method.

AS the Acorns are sown in Stitches, or Ridges, at no greater Distance than what is necessary for the Spread of the Oaks Roots, there should nothing else be suffered to grow but them; and this may be done by the Interspaces being kept clean with Houghs, and then the young Trees will have a great Advantage by this high sowing; because many of their Roots will run almost Level with the Ground, and be better watered by the Rain's Descension from the Top and Sides of the Stitches; so that here will be nothing more to do, than looking after their Bodies and keeping them from Moss, the Growth of Side-Shoots, and thinning them where they are too thick. I have planted several Apple-Trees, in my Orchard, in Stitches, that by this Means grow as fast again as those in the Levels. At *Leyburn* in the *Vale* I have also seen a fine Apple-Orchard, that, because the Ground was flat and wet-tish, they planted the Trees on high Ridges made by the Foot-Plough, by ridging up four or six Foot broad of Earth. So likewise either in the *Vale* or *Chiltern* may Oaken Sets be planted on these Ridges alone, or with fallow Sets or Cuttings, &c. But here I must farther observe, that in laying by Acorns all the Winter so sow in the Spring, some will judiciously spread them all over a boarded Floor, in a thin Manner, in Order to keep them from heating and sprouting, and is what will do very well if preserved from the Frost, which is another Enemy to this Seed. I knew an ignorant Person once keep Acorns all the cold

cold Season in a Heap in a Chamber, and so spoiled many of them, and damag'd the Plantation of Oaks which grew from the rest; few of the Acorns having escaped a Bruise, or spring in some Degree before they were sown: But what added to this Misfortune, the Ground, which was a loamy Gravel in the Chiltern Country, had but one Ploughing allowed it off a Stubble, and then the Acorns were ploughed in so deep, that many never came through; and those that did, at twenty Years Growth, were scraggy, stunted, poor, small Oaks, leaving besides the Ground at least half Treeless.

Oak peeled as it stands, and remaining so two or three Years, hardens the Sap almost like unto Heart.

An Oak felled in Winter, and another in *April*; the first rotted, when the last was found.

Right *English* Oak makes a Cask that will last as long again as that of *Norway*: *Norway* Oak is commonly so porous, that if you put some Spittle at the End of a Stave, a Foot or more long, and blow at the contrary End, it will sputter like a Piece of Cane, if the Grain runs strait, and there is no Knot between. But sound *English* Oak, cut-down, at a right Age, from a good Soil, is generally of too close Parts to admit of such a Proof.

An Oaken Thrashing-floor was laid half with Planks soak'd in black Pond Water, and the other half with unsoak'd Planks; at fourteen Years End the first was found, when the last was rotten at the Bottom Side.

Oaks-made Pollards, is quite wrong; for while its slow Shoots are growing, the Body of the Tree is rotting. Oak will grow better in wet than dry Ground. I have heard of a transplanted one, in a moist Soil, pay 8 *l.* at fifty Years Growth.

A Fifth Way.

AT *Potten-End*, about two Miles from me, (I am told by a Person now living that saw it) there was, about forty Years ago, half an Acre of Land sowed with most Sorts of Seeds of Wood, that the Owner could get, amongst which were Hazel-Nuts; these invited the Boys as carefully to carry them off, as he brought them on; which Accident so instamp'd the Transaction on the Memory of those that were the Gatherers of the Nuts at that Time, as caused them to remember the Matter (as they say) truly well: And there is now on the same Piece of Ground good Oaks, Beech, Ash, &c. that grow very well from the Person's harrowing all the Seeds in, which as soon as done, he sowed Hens Dung all over the same, that by the Winter-Rains was washed in before the next Summer. This Method was attended with great Success, for the Fowl-Dung made the Seeds push up and run vigorously, so that they overcame the Weeds, and made their Progress without their Hindrance.

Remarks on the Fifth Method.

THIS Way is full Sowing and full Dressing at one and the same Time, which admits of no other Improvement than cleaning, fencing in, pulling off the lateral Shoots as they appear, and thinning where they are too thick.

A Sixth Way.

THERE is in my Neighbourhood a Man that the Farmers in general allow to understand Country-Affairs very well, and is often employed in Wood-Work, who says, That if a Piece of Ground
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is designed for a Wood of Oak, there is not (in his Opinion) a better Way to obtain it, than to plough, dung, and let it run over with wild Grass and Weeds, which it will do in one Summer, and at the End thereof, about *Allbollantide* or sooner, to sow four Bushels of Acorns, or more, broad Cast on each Acre thereof; and do nothing more than fence in the Ground from Damage of Cattle, to have a Wood the quickest and in the best Manner of all others — his Reasons for so doing are these, *viz.*

First, This Grass and Weeds, by its large Burthen, will cause a great Hollowness on the Surface of the Ground, which by its dying on the same, becomes one of the best Manures, not only by helping to keep in the Spirit of the Earth, which all Shades certainly contribute too, but returns saline, nitrous, and sulphurous Qualities back again, by the Dung and Dressing this rotted Fogg makes, and thereby brings the Ground under a gradual Fermentation, and hollow, spongy Texture of Parts, as is most evidently felt by the soft, hollow Tread of one's Foot in woody Grounds; or where a good Crop of Peas, or other Stover in great Quantities has been taken off.

Secondly, That this and all Ground has such a Suction and Attraction inherent to its Nature (as being the Mother of all Things) as will eagerly draw all Sorts of Seeds into its Surface; and therefore it is, that the Earth freely receives and shelters the Acorn, so that it will lie in this loose mellow, moist, warm Earth; and by next Summer grow with great Vigour, and be defended from the Damage of Droughts by the Cover of this Grass and Fogg; which by yearly consuming on the Ground, becomes a yearly Dressing to the young Oaks, and will push them on with great Fertility.

I Can't say, but this Way has a Probability of Success attending it, by reason it is so near that of Nature ; for in a four Acre Meadow of my own, adjoining to my House, there were reckoned by the Mowers to be two hundred young Oaks, about six Inches long, that spontaneously grow up from the Acorns that were brought there by the greatest Artists in the World, the Fowls and Mice ; who made this Piece of Ground their Rendezvous to feed on the Acorns, that they collected and brought from the adjacent Woods. My Number are fifteen inclosed Fields, consisting of Meadow and ploughed Grounds, nine others I rent of our Parson : Now in all the ploughed and Meadow-Fields, I believe I may say, there were growing this Summer, 1732, great Numbers of young Oaks from the Acorns that Birds and Mice brought on the Ground, from Trees that the Year before were almost full of them ; by which it appears, that the Fowls and Mice are the first Bringers on, and Sowers of the Acorns in the Meadows and ploughed Ground ; because its Body being a large Solid, cannot be supposed to be scatter'd over such Grounds by the Wind ; and why the Meadow or any other smooth ploughed Ground should have a greater Share of this Seed, than the rough, clotty Land, is easily accounted for : Because here is smooth Walking, and easier Access to each others Company, which is agreeable to Fowls as well as Beasts ; and here is the Place that they are best acquainted with, from their usual frequenting at other Times in the Year, in quest of Worms, Snails, &c, which in the rough Grounds cannot be so pleasant, because they there must look before they step, and so lose in a great Measure their Enjoyment in feeding on this delicious Food, which they are always most pleased with, when they can eat it in an unobstructed

Piece

Piece of Ground: Here it is then that they scatter this Seed, and sometimes leave it on the same by Way of Magazine, and Provision against their next Hunger; and sometimes they bring to these Places Branches of Acorns which are not always eaten; at other Times they are suddenly scared and frightened from the Spot of Ground, which in their precipitated Fright causes them to leave and forget the Acorns they lately brought, and that chiefly by the Rook, Crow, and Jay: The Rook upon this Account is the busiest, and most common Fowl of all others, by Reason of their greater Numbers; and it is disputed by some, whether they don't bring several Acorns in that Bag which generally hangs under the old one's Throat, and disgorge them as Pigeons do Peas and Beans at their Pleasure: We are very sensible they bring Worms and Water in this Bag, to feed their young ones with; and nothing but the Bigness of the Acorn makes us doubt their not doing so by this, in order to make their Hoards at the Bottom of a Furze-bush, and other Places, which the Furze-men often find, as well as Walnuts that the Rooks thrust in with their Beaks; by which Means, are the many young Oaks seen on Commons, that are cut down when the Fuzes are, by the Stroaks of their two-handed long Bills; for it often happens that a great deal of this Seed is envelop'd and covered by the Moss and Grass, that the hollow Earth in ploughed Grounds will readily and naturally receive, nourish, and cause the same to strike its Radicle into it; where, at that Time of the Year, it has more than ordinary Encouragement to grow, because the Rains and Dews are moderate, and the Ground about *Michaelmas* Time under a fertile, bearing State; and by thus getting Root easily, it secures itself against the Violence of the Winter Frosts and Wets. It is common about *Marlow* in *Berkshire* for the Boys to follow the Rooks,

to get the Walnuts they bring and leave on the Grounds there. Also in the Grove Meadows, a Mile below *Iwingboe*, a Ploughman told me, he had ploughed up great Numbers of Acorns and Walnuts this Summer, 1732, when he turned up the Ant-hills with the long, wide, sharr'd-foot Plough; these he concluded were brought thither by the Rooks, who feed on them there for their greater Safety and Repose; and those that were left, were carried away by the Mice, for their Winter Provision; for the Rook is a subtil Fowl, and will strip a Walnut Tree in a little Time, and will hoard them, as knowing they will be soon deprived of that Opportunity, by their being gather'd; and so of the Acorn, I have seen them rid a Tree presently, by their great Numbers.

Hence it is, that I infer, that a Meadow or prepared ploughed Ground, that lies at a small Distance from a Wood of Oak, and in an undisturbed Situation, may possibly have considerable Numbers of young Oaks grow on the same, besides what are produced by sowed Acorns and planted Sets, merely by the Fowls bringing the Acorns, and feeding on them there, in a plentiful Mast Year. And if this Field, or Piece of Ground, lies in Reach of the Wind's Power, by which they may be conveyed from some neighbouring Wood, Hedges, or single Trees, then will there be as numerous an Issue by Ashen Keys, and Gollins of Sallows, Asps, and white Wood, as will quickly compleat this intended Wood, and outdo the very next Field that was sowed or set too deep. But I would here be understood, that I am not a direct Votary for any certain Stress to be laid on this Method of increasing a Wood of Oak, Beech, Ash, Sallow, &c. only to shew the Possibility and Probability of augmenting one by Fowls, Mice, and Winds; for it may be depended

depended on, that sowing and planting the Acorn and Set, is much the surer Way.

The Seventh Way.

IN some Part of *Hampshire*, I have been creditably informed, that it has been the Practice of some, to plant a Piece of Ground with young Oak-en Trees, as being thought to be the quickest Way of all others to get a Wood ; but then this Method is confined only to the Power of those who are Owners of a Wood already, or at least but to few others ; and then they dig and take up a young Oak, perhaps of four, five, six, or eight Foot high, with such a Ball or Parcel of Earth, as when carefully carried and transplanted with the Roots in it, and put into Holes duly prepared before-hand, will grow, flourish, and come to Perfection much sooner than the small Set or Acorn ; and by losing Part, or all of its Tap-root, will commence its new Growth horizontally, and get its Nourishment from the very best Part of the Ground, I mean the Surface ; and this Work should be done in *October*, as the very best Time in the whole Year ; or in frosty Weather, by digging some Time before about the young Oak, and as soon as the Earth is hard frozen about its Roots, then take up the Tree and that together, and carry it on a Sledge, or other Carriage, to the Place designed, and take or fence it up very well, as directed for the Beech ; thus an Oaken Wood may sooner than ordinary be brought into a State of Perfection.

The latter End of *November*, 1732, was the first Frost that happen'd this Winter, when several Fir Trees, I believe twenty Foot high, and eight Inches Diameter in Body, were transplanted in this Manner, on a Common near me, with a Beech at every ten Foot Distance between them, for covering the
View

View of an old House that stood at the End of a Visto; the Turf was first pared off, and the under Mould loosen'd; on this they planted the Trees, and mounded them up with Turf they pared off about the Place, which was sufficient with the Earth they brought with the Trees Roots; putting at the same Time Wheat-straw between the Layings of the Turf, to keep the Frost off in the Winter, and the Draught of the Sun and Air in the Summer; after this, they staked each Tree with four Poles, of about ten Foot long.



C H A P. II.

The Nature and Improvement of the BEECH.

THE white, or Silver-Beech is the most common in these Parts, where we abound in Mountains and hilly Grounds of Chalks, Clays, Gravels, and Loams, which make considerable Returns of Profit to their Owners in the Growth of this valuable Tree: 'Tis this Tree that makes many Parts of *England* happy in its Productions, and chiefly, because it will grow on the Sides and steep Declivities of chalky Hills, where no other Timber will thrive so well; as may be seen in that long Chain of high Grounds, that runs from *Dunstable* to near *Wallingford*, which is above twenty Miles to the Westward, and lies mostly contiguous to the fertile Vale of *Aylesbury*.

The black-grain'd, or black-bark's Beech, whose Wood is of a longer Duration, will thrive, and make its plentiful Returns of Wood, and Mast, in the Flats and Levels of this our Chiltern Country; and, to speak

speak more general, they both answer so well in any
 of these Grounds, that I don't perceive any Regard
 is had to the particular Species of the Beech, in sow-
 ing the Mast, or making Plantations by Sets. But it
 is certain, that neither Sort of Beech will grow to
 any Purpose in the large Vale of *Ailsbury*, or in any
 wet moorish Ground; yet will thrive very fast, and
 to a monstrous Size, in our Loams, Clays, and
 chalky Grounds, &c. in the Chiltern; inasmuch,
 that I knew one fell'd in *Asbridge* Park, that had one
 hundred and fifty-seven Foot of Timber in it, besides
 twenty-one Stack of Fire-wood Billet, nine Stack of
 Roots, and three hundred of Faggots. Where also
 may now be seen great Numbers of very large Beech-
 Trees, as being accounted, by good Judges, one of
 the best-wooded Parks in *England*. This utterly
 confutes what a modern Author says, That, wherever
 the Oak thrives, the Beech will; and that they delight
 very much to grow together.-----Whereas some of
 the greatest Oaks have, and do flourish in this Vale
 that refuses Entertainment to the Beech, notwith-
 standing the many Attempts that have been made by
 several to obtain their Growth there; particularly by
 Sir *Thomas Leigh*, the present Representative for
Ailsbury, by their sowing the Mast, and planting
 young Beeches amongst or near their Oaks, within
 a few Miles of that Town, but to no Purpose; for
 the Beech will never make a good Tree in their vale,
 spewy, and wet Soil; nor will the Oak, nor indeed
 any other Timber-Tree, grow to any Profit in chal-
 ky Grounds; which obliged our Forefathers, as well
 as those of the present Age, to set the Sides of their
 chalky Hills, &c. with Beech-mast, where this Tree
 will run up to a vast Height, with great Expedi-
 tion; as may be seen on that worthy Gentleman's
 Estate, *John Duncombe, Esq;* at *Barly-End*, near me:
 Nor can I be of Opinion, that the Oak and Beech
 grow best together; but on the contrary, I believe
 them

them best in their own Company, because the Beech grows too fast for the Oak's Pace; and, as if Nature delighted, herself with the entire Growth of each Sort, it generally happens in our Chiltern, that where a Wood of Oak has been fell'd, a Wood of Beech has spontaneously succeeded; and when this has once got Dominion, it will be sure always to remain Master. This very Case has happen'd to Sir *William Stanhope's* Wood, about twenty Years ago, within a Quarter of a Mile of my House, called *The Great Hoo*, where the young Beeches grow so fast in the Room of the Oaks, that it is thought they will be fit to fell about twenty Years hence.

This Tree furnishes Boards for Outfides of Barns, Floors of Chambers, and for Threshing, Wood for Fellows of Wheels, Frames of Chairs, Ship and Mill-wright, Turners of hollow Ware, and even for Wainfcott: In the Water this Wood is said to lie hundreds of Years without Decay, which makes it so serviceable in Mill-work, &c. that they have chiefly by these Means proved it Timber, which formerly in many Places was deemed otherwise, particularly in *Hertfordshire*. A famous Instance of which happen'd between-----*Uxly*, Esq; Defendant, and the Rev. Mr. *Biby* of *Carrington*, Plaintiff, about the Year 1725; the Contest was some Time before the Barons of the *Exchequer*, but was at last given in Favour of the Defendant, on Account of its Timber-Uses in Mill-work, Keels of Ships, and in House-building; &c. so that in *Hertfordshire* it is now deem'd Timber, as well as before this Trial it was in *Bucks*, after twenty Years old, and then Tythe-free; but if any Beech is fell'd, and another from the same grows up, this is to be tythed whenever it is cut down.

Of the Sap of Beech, and how to get it out.

THE Sap of this Tree is more destructive to its Wood, than any other Timber-Sort whatsoever; therefore 'tis a useful Art how to get it out; for, 'tis this Sap that breeds the Worm faster, and in more Abundance than in any other, causing a swift Rot, and other Misfortunes; which very material Point has not, as I know of, been yet wrote of by any Author; and it is so perfectly necessary to get the Sap out of the Beech, by some Means or other, before the Wainscot-Boards or Planks, &c. are made Use of; that otherwise they will bulge out and in for many Years, as the Weather is moist or dry; and so it will in Flooring-boards, notwithstanding they are nailed down ever so fast; as I have proved in a Garret-floor of my own, which unfortunately fired by a Neighbour's House; but several of the Beechen Boards were preserved and laid down again, since which they never stirred: Therefore if the Sap could be got out, I doubt not but they would lie as well as other Boards; as plainly appears by these of mine that were scorch'd, and the Sap burnt out: But in the two-lath Plank for Barn-flooring, where they are drove down with wooden Pins, they may lie well enough for many Years, if immediately after sawing they are thrown into a Pond or River, and there let lain four or five Months, after which they must be thoroughly dried and layed twice. The Practice of an old Carpenter by me is, to cut this Tree down in Winter, and let it lie on the Ground two Years, 'till the Wood begins to be spotted or mottled; then he cuts it into Planks or Boards, and soaks them in fresh Water; but if a Person had the Conveniency of salt Water, I should think that would be much better. By this Time, he says, the Sap is so deadened and hardened, that the Worm cannot breed so
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soon, nor so much in it; and has himself some in good Order now, that were lain above thirty Years ago as Flooring-boards; for which Use thirteen are commonly sawed of solid Timber, a Foot broad; but more for Barn-sides, because the thinner the Board, the less Power the Worm has.

A Second Way

MAY be made Use of in the smaller Sort of Beech-Trees, whose Bodies do not exceed twelve or fourteen Inches thick; that first should be hewn and squar'd, and Mortaifes made ready for Plates, Chimney-Pieces, and also for Somers and Joyfts, &c. and then they may be lain in Length and supported at each End, so that four, five, or six together may lie even and close together, about a Foot or two higher than the Ground; under these may Furzen, Fern, Straw, Shavings, or Faggots be put to burn all their Out-sides 'till they have a thin black Crust; this will so embitter the Wood, and roast out its Sap, that there will be but small Encouragement left for the Worm to lodge and to breed; because the Worm undoubtedly has a Taste, tho' an Insect; and therefore will consequently leave the tainted Wood, or die in it, and be prevented afterwards by this Extraction of the Sap, which is the prime Cause of their first Increase. These Somers and Joyfts will lie very well next a Fire, and where their Ends do not rest on damp Walls; but be they any where; their Ends should first be dipt in melted Pitch, as a Preservative: I know of two Houses that now have Somers and Joyfts of this Wood; in one they have lain fifty Years, as the Tenant says, and the other thirty.

A Third

A Third Way.

According to the modern Practice, and, indeed, far the best it is, instead of cutting this Tree down in Winter, as the usual Way has been, to fell it about a Fortnight after *Midsummer*, when it is reckoned in full Sap, or in its most flourishing State; for, that then its Juices are at the thinnest, and strongly employed in Branches, Leaves, and Fruit; and then it is, the Body has the least Share of Sap in it; therefore it will be much more run out, exhausted, and dried away by the Sun's Heat, than if fallen in Winter: Now the Benefit of this entire new Method is not a little; for it has been proved, that the Wood of a Beech-Tree so felled, has endured much longer sound, than that cut down in Winter; the Trial was, by letting both these Trees lie on the Ground in the open Weather; and in very few Years the Winter-Tree was worm-eaten, and began to rot, when the other remained sound; so that the very best Way of all that is practised in my Knowledge, is to fell this Tree in Summer, and let it lie one Year abroad, with the Rind on, sometimes turning it, and then saw it into Boards or Planks, which must be laid in a Pond or River, three, four, or five Months, 'till the Sap is soaked or washed out: This will keep the Boards from warping in a great Measure, and cause them to endure forty or fifty Years on Floors, and against the Sides of Barns, &c. As to Capt. *Cumberland's* Method (for which he has a Patent) of extracting the Sap out of Planks for Ship-Building, by sweating them in hot Sand; I cannot say how it answers, because I have not seen the Experience of it: But the Trench-maker is so cautious of getting the Sap out of this Wood, that, as soon as he has cut them out rough, he throws them into boiling Water, which directly brings out

the Sap, and then they will keep their white Colour, and be more free from the Worm ; which otherwise would, in a Month or two, eat through their thin Substance.

Of the Management of the Beech, in Timber-Uses, &c.

THE best experinced Method then is, to fell it in Summer, and saw it out directly for Timber-Use ; for that a Tree so cut into Pieces, is brought under the Power of the Air much more and sooner than when in one round Body ; and then must be carefully preserved from the Sun and Wet, under Cover ; where the Sap will be sooner dry'd out, the Colour kept in, the Wood hardened, and the Worm greatly prevented : For 'tis certain, the Sap of a Tree is in two different States in a Year : In Summer, a fluid aqueous Body, rarefied by Heat ; in Winter, a glutinous Consistence, densified by Cold, which has caused different Opinions about its Circulation : One Author asserting it to ascend and descend gradually all over the Tree, as the Blood moves in the Body of Animals : Another, That the Sap in the North-Side is not always so thin as that in the South, and therefore denies it that Regularity. And I have heard a Workman in this Wood say, that that Part of the Tree that stood the South-east Aspect, rended or split more trim and free than the other contrary Sides ; But however that be, 'tis allowed, that the Sap is the immediate Cause of the Worm's breeding ; which being of a moist Nature, all Dryness is an Enemy to it, and, by Consequence, a Conservation of its Wood. In the late great Fire at *Ailesbury*, there were some Timber-Plates saved, that had lain sixty Years in one of the Houses there, and shewn by an old Carpenter as thorough sound Beech. So great a Friend is Cover and Dryness to this

this Wood, as has been obvious in a Chair that was made of it, which usually was kept by the Fire, and is now in good Order, at above thirty Years old; when others, that stood in a more dampish Place, rotted in seven Years. To avoid then the pernicious Effects of Dampness, that suddenly helps the Sap in the Production of the Worm and Rot; I here caution every one concerned in laying a Barn-floor with this Sort of Wood, that they do not lay the Planks too near the Ground; if they do, they will surely rot in less than seven Years Time; therefore, the best Remedy is, to lay them on Somers and Joists, about a Foot or two from the Ground; for nothing decays it faster, than to let it lie wet and dry: Several Farmers of late have laid it thus, dry and high, and yet have an easy Passage with their Cart or Waggon into the Barn, by a Rising made of Boards, with cross Ledges nail'd on the same, to stop the Horses Feet, like that by which Horses and Coaches get into Ferry-Boats; or by a rising Ground made on Purpose for this Occasion. Now there are two Ways of laying these Planks to thresh on, to hinder their Opening at the Joints, (which they are apt to do, though laid twice) and letting the Corn thorough: One Way is, to lay one Plank a little over the other at Bottom; but this loses too much of it: The other is, to make a Groove in each Plank, and put in a Slip of Wood, like a Lath, which the Carpenters call Tonguing it: Some also saw the Boards of Beech Feather-edg'd, for the Sides of Barns; as believing, they best carry off the Water this Way. The Price of this Timber, here, is six Pence the solid Foot; the Boards seven Shillings and six Pence a Hundred, and the Planks for Threshing-floors, two Pence Half-penny a Foot, both superficial Measure.

Of the Seed or Mast of the Beech.

THE Beech excels all other Trees in Parks, &c. for the Return it makes of prodigious Quantities of sweet, healthful Mast, which greatly helps to subsist the red and fallow Deer sometimes, for most Part of the Winter; as I have seen in that of *Ashridge*, near my House, which is seven Miles about, and contains twelve or fourteen thousand Head of both Sorts. The expressed Oil of this Mast I have thought very pleasant to my Taste, and near as good as that of Olive, and is said to yield two Gallons from one Bushel; then if one hundred and eight Trees on an Acre, at twenty Foot Distance, were to afford five Bushels on each, (instead of fifty, as some reckon) that would amount to five hundred and forty Bushels, which, according to this Calculation, will produce one thousand and eighty Gallons of Oil, that may very well be allowed worth three Shillings per Gallon; and if only, out of that Sum, one Shilling was to come clear to the Owner, what an immense Profit must here be to those that have great Numbers of Acres of this Wood, besides the Benefit of the Timber-Growth? Nor is the Hulls without their Value, for of this the Poor sweep up great Store for their Winter-Firing; and when the Mast happens to be plentiful, (which commonly is every second or third Year) we Farmers generally get our Hogs almost half-fatted, before we put them up for Bacon. The Leaves, if gathered before the Frost, and about the Time of their Fall, makes the best of Mattresses to lie under a Feather-bed, or otherwist, that will continue sweet seven or eight Years, by their Tenderness, and do so lying; so that the Wood and Leaves make both House and Bed, and the former the best Firing; of which I have sent several Stacks to Mr. Roger Williams, at his House in St.

James's

James's Street, who makes a great Consumption thereof.

To raise a Beech-Wood from Seeds or Sets.

THE Beech, by its large Bud, discovers to the Country-man, about *Christmas*, that there will be a Probability of a Mast-Season the succeeding Summer; and when the seedy Bloom out of this Bud shews itself, as it will sometimes near an Inch or two long, with a Sort of rough Head, somewhat like a Golling in *April*, it is then a Confirmation, if the Extremity of the Weather does not destroy it. Beeches are best raised from their Mast, which are usually ripe some Time in *October* or *November*, when they should be gathered, and directly sown on Ground that has before been sufficiently ploughed into a Fineness, and duly manured; but if this Work is deferred 'till the Spring, then the Seed must be laid in dry'd Sand, and not into that which is wet or damp; for, then their Radicles will be in Danger of sprouting before the Sowing-Season comes on, and that is when the great Frosts and Colds are mostly over, which happens sometimes in *February*. This Seed differs from all other Timber-Sorts, in that it comes first up with the Seed on its Head, opening in two Parts, like a Kidney-Bean, then succeed two Leaves; and so proceeds. 'Tis therefore that this Seed must be ordered accordingly: For, as it is obliged to make its Way out of its native Mould, under the Disadvantage of such a large open Head, it requires a light hollow Earth, wherein this Seed is sown, otherwise it will lie and rot, as not being able to make its Way through; so that to sow it in a stiff clotty Soil, and to plough it in under Thorough, or to set it deep, is downright burying it, to the Owner's Loss and Disappointment. And, as this Description of the Seed, and Caution of its
first

first Management, has been wanting in all Authors I ever met with; I shall therefore advise my Reader to sow two Bushels of this, in its Hull, or without, on an Acre, broad Cast, on broad Lands, well harrow'd in both Ways, on such Ground, and at such Time as before directed; so that I shall not further enlarge on this Particular, because what I have writ of the Acron may suffice, in shewing the further Ordering of this; I shall only add, notwithstanding all that is or can be said of the several Methods to get a Wood, either of Oak, Beech, Ash, and many others, yet is there none so perfect and genuine as that which is raised directly from the Seed; because no transplanted Set or Tree can possibly be taken from one, and replanted in another Earth, without Violence done to some of its fine Capillary Roots, which has been the Occasion of many ill Consequences, too long here to enumerate; and therefore the Second-hand Way is only to be made Use of, where the first can't conveniently be done; for 'tis obvious to common Reason, that the Root of any Tree has the most propitious Opportunity of making its gradual Growth from its Radicle or Sprout, that never afterwarde meets with Opposition, as transplanted ones do, that are not naturalized to the Ground; which is the Cause that their genial Roots push with more Vigour, grow stronger, and stand in Need of less watering, than the replanted ones do: Nor do I believe a Tree will be so good Timber, as that raised on the Spot from its Seed; and, for ought I know, it may be the real Reason, why the Elm that is generally transplanted, is often a more shaken shatter'd Tree in its Body, than any of the Timber-Sort are.

In that Part of the Country, remote from Woods of Beech, the Mast of this Tree may be transplanted, where it may be sown either in their Fields as aforesaid, or in their Nursery-beds, in shallow Drills well manured, as we do the *French Bean*; and this
either

Improvement of the BEECH. 41

either in *October* or *February*, and afterwards transplanted into another Bed, at a Foot asunder, till till they are of such a Bigness as is desired, to plant out for good in a Hedge or Field: However, as I am now writing from a woody Country, where Beechen Sets may be had in many Places; I shall enlarge on the Propagation thereof, as being made use of by many here as the readiest Way, particularly to raise Hedges with. In our Woods of Beech, arise spontaneously great Numbers of young Shoots, which about *October* (for that is the very best Time) may easily be drawn by a Man's Hand, especially if great Rains have lately fell before; these, I say, may be had of any Size, but the best, in my Opinion, are those of two Foot long; for then the Set has commonly a good Root, which a smaller one has not: These must not have their Tops cut off, for then they will not grow, as several have experienced, that would not be convinced, till Trial warranted the Truth; and of this Authors have hitherto been deficient in their Writings, but the Side-branches ought not to be cut off, till they are at a sufficient Height, and not then close to the Body; for the Beech either in Set or Tree, does not agree with the Edge-tool, like some others: This order then to obtain a Wood by Transplantation, I propose to perform two several Ways: First, let the Ground be well fenced, ploughed, and manured in broad Lands; then on this level Earth run a Line cross the Field, and at every ten or twenty Foot Distance, plant one or more of these Sets on the Surface, and mould it up with a Border, putting a little Fern between, and some on the Top, leaving a small Hollowness or Dish about the Root, in the Manner Cucumbers are set in a Garden, for the Water the better to descend to the Root; and when one Row is done, then to move the Line to ten or twenty Foot further, and so on; these may be kept

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water'd

water'd and houghed, according to the Pleasure of the Owner, and artificial or natural Grass, enjoy'd in the Interspaces, &c. Secondly, by the Plough, the Ground may be so gather'd into a four Thorough'd-stitch or Ridge, and on that may be made a Thorough or Gutter, by drawing the Plough once through the upper Part of it; in this may be planted at every ten or twenty Foot Distance a young Beech, and the rest of the Stitch fill'd up in a Row with Sets of Hazel, Sallow, and other Underwood, but so that each Beech must be planted in one Row; against the middle Vacancy in the other Row that is to be at six Foot Distance: This Way will give an Opportunity to keep the Interspaces, as I have said before, clean, that the Roots may not be impeded by Weeds, and thereby better water'd by the Descent of the Land between the Rows, as may be seen at Sir *Thomas Seabright's* Grounds, near *Market-street*: By this Method, the Trees and Underwood are also better preserved against Thieves; for here a cut Stick may be easily missed, when those planted promiscuously are difficult of Discovery, which has so encouraged this Sort of Rapine, that I have seen a young Beech of I. believe twenty Years old, that was cut down, the Stump daub'd over with Dirt, and was carrying away on a Fellow's Shoulder, when I met him in the Wood.

But before I finish this Article of raising a Beech Wood by Seed, I add, that whenever this is to be done on the Side of a chalky or any other Hill; the best Way will be to perform it with the Help of the *Kentish* Wheel Turn-rise Plough, and that because this noble Instrument will plough all the Ground one Way, at going backward and forward, which none of our *Hertfordshire* or any other Ploughs can do; and remember with this same to plough the Ground beforehand into a fine Tilth, well dung'd and manured. Then the last Time,
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sow this triangular Seed clear of its common rough Hull, two or three Bushels on one Acre broad Cast, and plough it under Thorough: for that in such a loose chalky Land, this Way will help to make the young Shoots stand fast, and preserve the Seeds from Fowls, there being no Danger of burying the Seeds as in stiff flat Soils. The Benefit of this Operation consists also, in that you turn all the Thorough downwards, that the common Ploughs turn both Ways; for if in this Situation you were to turn the Ground upwards, it would be apt to fall down again, and so spoil the Undertaking. This Sort of Plough, with most others, I furnish any Person with to any Part of *England, Scotland, or Ireland*, at reasonable Rates: But where the Beech Mast Seed is to be sown in a flat clayey or other stiff Land, then after the last Ploughing, and before the Earth is harrow'd, sow your Seed broad Cast on the rough Ground, and harrow, once in a Place long Ways, and once in a Place cross Ways; or if the Land is between stiff and light, then sow half your Seed under Thorough, and harrow it in. — Beech has no Heart, as being all alike in its Body; the Elm has Heart; the Oak has Heart; the Cherry Tree has Heart; the Aquatick has a little, but the Maple has none: Now if you soak Oaken, Cherry Tree, Elm, or other Boards in Water a Fortnight, it will make the Sap and Heart Part all of a Colour; nor can they be discovered, unless the Plane new shaves them, which give a knavish Carpenter or others an Opportunity of exercising a Fraud, by selling sappy Boards for hearty ones.

Of the Transplanting large Trees,

ON Commons, in Parks, and other Places where the Mast cannot be sown, nor the Set commodiously planted, then a Beech of seven or eight Foot high, and three or six Inches Diameter is best;

which to do, the Method that is set down for young Oaks will answer here: There are several of these planted on our clayey Green, with the upper Part of their Heads on, and only their Side-shoots trimm'd up, with one great Stake drove into the Ground and fasten'd with a Band to its Body, and then bush'd up very well all round and high; but if they are to be planted on Chalks, then a Hole must be first dug, and good Mould put in it.

Observations on Transplanting.

WHere an old Beech has been fell'd, in order to raise another from the Shoot, that might spontaneously get up from the same Place, there has been several Panes of Paleing brought upon the Spot of Ground to enclose it: But it has been found by Experience, in many Instances of various Kinds, that there are several Sorts of Juices or Qualities in the Earth, with which it is impregnated by the Original Creator, for the Nourishment of the many Sorts of Species that grow therein; each Particular having a Power to extract and imbibe the same, after his inherent Nature, peculiar to the Mode and Texture of its Parts, which has been evidently proved, both in Trees, Corn, and Grass; for where an Oak, Beech, or Ash has been fell'd, and another suffer'd to succeed in the same Place, by a Shoot from the old Root, or another of the same Kind transplanted in its Place; it will either be defective in its Growth, or else not grow at all, as is obvious in some of mine and others Grounds; several of which Sort I have cut down, and what most of our Country Carpenters are apprised of, when they look at the Bottom of the Tree; therefore when one Sort has been fell'd, the Root ought to be extirpated, and one of another Specie planted in its Room; and this Nature itself dictates to us, according to what

what happen'd to my next Neighbour, who planted a young Apple Tree where an old one had been felled, but it grew so slow, as provoked him to take it up, and put a standard Pear Tree in its Room, which now flourishes to his Satisfaction: The very same Reason accounts for the sowing of Corn and Grass: If Wheat directly follows Wheat, and a Crop of Barley or Oats succeeds one and the same Sort of Grain; or if Clover was to follow Clover, they would certainly degenerate in a Degree, and prove a Loss both of Cost and Time; which is the very Cause why the Farmers in general find a Benefit in sending some Miles for different Seed; and 'tis as certain, where an old Beech has been cut down, that the Ground about it is so impoverish'd by its long living in its Juices, as to make it barren to a Successor of its own Kind.

To raise a Beech Hedge by Masts or Sets.

BY Mast, either in the Month of *October*, or in *February* or *March*, it may be sown in a Drill almost close to each other, and then the Earth cover'd lightly on the same, and over that some Horse-litter to defend them from the Frost and Sun, but not in too great a Quantity: This, I suppose to be done in a Bank of Mould, thrown up by making a Ditch of two Foot deep, and as much wide. But our common Method here is, to raise a Hedge by Sets, which is the quicker and readier Way; for of late it has been discover'd, that no Wood makes so strong and profitable a Fence on chalky Grounds, as the Beech; because this will grow and flourish there when others will not. It was about the Year 1718, that I planted about fifty Poles of Ground with Sets, and was esteemed by proper Judges to be as fine a Hedge as ever they saw; for it was in some Parts of it eight Foot high, and so much Wood in it.

it, as encouraged me to make it last Winter, 1731, by plaishing it down. When I first begun making it, I proceeded thus, *viz.* as I throw'd up my first Spit of Mould, I planted my Sets of about two Foot long in the same, and so went on, planting them in a single Row, as near together as their Roots would allow me; on these I threw the rest of the Mould that came out of the Ditch, but in doing it I observed, with a great deal of Care, to lay, chamber, and spread their Roots, so that the Fibres might not touch one another, but be kept asunder by the fresh Mould that was laid between and upon them, by which the Roots were bedded, and grew some Time single in Virgin Mould, as is the Nature of the first Spit; and when the second was laid on, some Horse-litter should have been put between the Mould on the Top, to keep the Frost off, or the Sun from drying their Roots the succeeding Summer. In this Hedge I planted several white Thorn Sets, and both Sorts grew very well, having the two great Advantages of untry'd Earth, and a Ditch to receive the young Roots; the former by its rich, nitrous Quality, and the latter by shading, and watering the new spreading Fibres. I also took Care to pull up my Sets in an adjacent Wood, in a moist Time: for then so much Mould kept to their Roots, as to secure them from being dry, which I presently transplanted (I think) in *October*, as the best Time in the whole Year; for then the Severities of Winter not being come on, the Roots directly struck into the Ground a little, and thereby were capable of defending themselves against the Extremities of Frosts and Colds. Sheep, nor any other Cattle must have any Access to them, the first two or three Years; for if they have, it's very likely they will destroy them, by their biting the Top or Side-shoots, or else to rub them with their oily Wooll, as to venom and impede their Growth;

Growth; and these are not only an Enemy to the Beech, but indeed to all Sorts of Vegetables in their Youth, from the Oak to the Shrub; and ought more than ordinary to be prevented here, because these being of the Tree Kind, instead of running expeditiously upright, will get a brousy, bushy Head, like the shrubby Sort, that now grows on *Wiggington Common* by *Tring*, occasion'd at first by the Cattle's Bite, or the People's untimely Cutting, for here they have free Liberty at certain Times so to do; and then the Beech makes not a quarter Return of Profit, as they will if they get high enough out of the Cattle's Way with their Top-shoots: Upon this careful Management, while in its Infancy, depends the After-success of a Beech Hedge; even as it is with a Colt, who is check'd by being work'd too soon, will be shackled-hamm'd, stunted, and complain ever after; so will this, if bit at top, or made too soon, before the Stems have Strength to endure the Chop of the Bill, and the violent Bendings of Part of their Bodies by plaiishing down; nor will this Sort of Wood rightly endure making in frosty Weather, when by the Cut of the Tool, it will fly from its Stem; caused by the Saps being frozen into a glassy, brittle Substance; and also, because the Beech is more spalt and short in itself than many others be. By *Dunstable Downs*, there was a beechen Hedge set about ten Years ago, but a great many died for these two Reasons: First, They planted them too late, that the Drought overtook them upon the dry Chalk: Secondly, They threw too much Earth upon their Roots, insomuch that it kept off the nourishing Rains from coming at them in due Season, and also much of the Sun's Heat as was necessary to make the Rain more healthful to them; so that this lies in the Discretion of the Planter, who, to avoid Extreains, must endeavour to lay on such a Quantity of Mould, as will
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in a medium Way let both Rain and Sun in. This Beech Hedge will also prosper in Clays, Loams, and Gravels, and in other moist Soils, except in wet, marshy, and low vale Grounds; here, indeed, the Aquatic claims the best Pretension, as out-doing all others in Quickness of Growth. I am very sensible of the two Objections against a Beech Hedge; the first is, that after its first making, it will not grow so fast as others, as hating to be check'd of its Tree Growth. To this I answer, That considering it will grow on a Chalk, where nothing else will thrive so well, it ought to be preferr'd. Secondly, That as it is of the Timber Tribe, it is apt to start and bulge out in its Plaishes, and so become hollow, that Sheep may get in. To this I answer, That it is true, as it is of the Tree Sort, it is apt to get out of the Course its Plaishes were first laid in; but when this Hedge is made by a judicious Hand, it will in a great Measure be prevented, by observing that these Plaishes are not left too thick in Substance, where the Chop or Bend is made, for if they are, then by its Strength it will raise itself up; but when at the Cut or Bend of the Plaish, it is left thin and slenderer than generally other Wood is, it will lie in its due Order; and if white Thorn is made every second Plant, it will so fill up any Hollownes that may happen on this Account, as to prevent those Inconveniencies; and if the Owner thinks fit to let any Master-plant stand to become a Tree, he has here that Opportunity, by singling them out, and letting them keep their Tree Growth. Before I conclude this Chapter, I have only this to hint, that a Carpenter who was to lay an Oaken thrashing-Floor, put half the Planks into Water two or three Weeks, to soak out their Sap, and then laid one that was not wetted near to another that was, to prove the Difference; it happen'd that at fifteen Years

Years End, that the soaked ones were as sound as at first, when the others were very much rotted.



C H A P. III.

The Nature and Improvement of the E L M.

THE two Sorts of Elm I here write of, is the Common Elm, and the Witch-Elm, without taking further Notice of the *Dutch*, than that it is inferior to both these in its Returns of Value; or of the Seed of this Tree, which is so much disputed by Virtuoso's, otherways than what it is allowed by some of our observing Country-Farmers, to fall from the Tree somewhat like a Butter-fly's wing, in *April* or *May*. But, as I never knew it practised, to raise Elms by Seed, I shall insist on the common Method of propagating them by Sets, and transplanted young Trees.

These Sets are generally got out of Hedges, or other Places, from the Bottoms and Sides of the Elms; but better and in more Abundance, after an old Tree has been lately fell'd; which should be drawn very carefully in wet Weather, in *October*, when the Mould about them is in a loose Condition; for then it is we have the best Opportunity, without forcing or straining their Roots, which certainly is a great Hindrance to their future Growth; and not only this, but all other Vegetables whatsoever suffer upon this Account: And I have often seen the very Skin or Rind of the young Roots left behind in drawing, and then they will never grow, at least never make good Trees; so that where they can be dug up with the Spade or Mattock, and some Mould

preserved about them, they are then in a true State of Transplantation ; and where they can only be had very small, they may be enlarged by planting them in a Nursery-bed, a Foot asunder, in Rows two Foot Distance, there to remain two or more Years, 'till their Bigness answers your Pleasure ; and then only to make use of the best rooted ones, whose Side-branches in the Nursery have been carefully pruned from Time to Time ; which gives the Root more Power to forward the Growth of the Body and single Head, than if there were a Number of lateral Shoots : And next to this Caution, is another as necessary ; that the small Fibres or Roots of any Set must never be suffered to be dried before they are transplanted, lest it prove fatal to them ; and this I ardently press, because I am sensible, the Want of Care in this particular Article has not only been the Ruin of many attempted Plantations, but has deterred others from the like laudable Design ; and therefore, in Case the Sets are got at some Distance, I advise, the small Roots be directly soaped as soon as drawn, which will preserve their native Moisture in them, 'till they are again replaced in the Earth ; or else to wrap them up in a Bundle of wet Straw, or in a Sack ; the first of which Ways will keep them in good Order, if sent by the Carrier one or two hundred Miles.

This Wood in particular is so prone to grow, that if an Arm, or Piece of its Head, from four to fourteen Foot in Length, is buried in a Ditch or Trench well manured before-hand, and covered shallow with Mould, it will grow ; provided it be done when the Leaves are coming out, for then the Sap will run into Shoots ; and also, if a Place or two are left open in such a Piece for the Shoots to come out at, as we do to increase our Sallows, &c. in Hedges and Woods.

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But to be quicker in the Enjoyment of this Tree, young ones are often bought of the Nursery-men, seven or eight Foot high, and three Inches Diameter, more or less; or if they are as big again, they are better; which when well rooted, and safely transplanted according to Art, they will, in about seventy Years Time, be at their full Perfection; to accomplish which, take the following Directions.

If this Tree is to be planted in a Hedge, it may at the making of it be put into the Ground, at ten or twenty Foot Distance, or as near as you please, for of all Trees, I never saw so many grow so large, and flourish in so little Room as these will, even almost close together; as may be seen about those Grass Inclosures, at the Bottom of *Ivinghoe* in *Bucks*; which fertile Property of the Elm I take to be owing to its being kept under a narrow Head, that is more agreeable to this Tree than the Oak, Beech, or Ash, or by its natural growing so, or from its succulent juicy Quality, with which it abounds more than any other Timber-Tree; and if I am right, the Bark of this Tree is rougher, thicker, and more spongy than any other, with causes great Quantities of Water to lodge therein; for it is seldom seen that the Water runs down this Tree like another; and therefore 'tis probable, that the Elm receives a greater Share of Nourishment from the Rain, than any other Timber-Tree doth; besides, as it is a Tree that bears no Fruit, its Sap is wholly expended in the Production of Wood and Leaves.

The Elm, as it affects a damp or wettish Soil, more than any of the Timber Sort, its Wood is of a more spongy, soft, and tough Nature, which makes it excel all others in Pipes, Pumps, and other Water-Works, will lie two or three Years abroad, without suffering by Worm or Sun; and in that Time, the Sap will become reddish like the Heart, which fits it the better for making Bowls, and other hollow

Ware, that will last longer of this Wood, and sell for more than either Beech or Ash; Dressers also, and Blocks of Elm, will not break away by Chops, nor will their Stocks in Wheels so soon crack and split, as other Wood will; it hardly refuses any Ground, for even in the moist, clayey Chalks, this will grow, but not in the dry hurlucky Sort, and best in the black moist Loams; on all loamy Clays, wet-tish Gravels and Sands, and in many low watery Places. They are at this Time much in Fashion, for making Avenues and Visto's to Gentlemens Seats, where they will, the best of any, permit their Heads and Sides to be cut into Diversity of Forms, which taking up but little Room in the Air, affords a fine, green, and lasting Prospect; but the main Matter is, to plant and preserve this Tree aright: To do which,

In case it is on a Grass Ground, pare off the Turf thinly, for two, three, or four Foot Diameter, more or less, as your Tree is in gress; put that by itself; after this, put the Turf the Grass-side downwards, all over the Bottom of the Foss, and the Mould over that: Upon this Surface plant and bed the Roots of the Tree; then bring more Mould, and raise a Border, six or twelve Inches high, according to the Spread thereof, putting Horse-litter or Fern between the upper Mould, and leave it dished or hollowed on the Top, and also some on the Top of the Border, all the next Summer to preserve its Roots from the too powerful Rays of the Sun, except the Tree is planted in a low moist Ground; then, indeed, such Top Cover may do more Harm than Good, by hindering the Earth about the Tree from enjoying a free Perpiration, which is perfectly necessary to the Growth of all Vegetables.

The next Thing is, to secure the Tree from Cattle and Winds; which to do, I think it is not enough to say-----Stake or Bush it up-----These are insipid

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Directions, but on each Side of the Tree, about a Foot from its Body, drive a thicker Stake into the Ground, than the Body of the Tree is, so that they may be four or five Foot out of it; then nail Ledges or Cross-bars against each other, two at Top and two at Bottom, and stuff some Grass or Hay between the Bars and the Body of the Tree, to keep it from galling; and then draw Thorn-bushes perpendicular through the two Pair of Ledges, letting the Top of them remain two or three Foot higher than the upper Bars, the better to keep Cattle from Rubbing. This Method will not only sustain the Tree against Winds, but all other Injuries from Beast and Vermin; here likewise is free Access for Water, or Weeding, and for Houghing, if that is thought proper. This Repetition I have again inserted, that it might be better remembered for its great Usefulness.

I planted a Burgamo, Standard-Pear-Tree, that I bought of a Gardener for one Shilling, just after this Manner, about four Years ago, on a gravelly Soil, on the Baulk or Hedge-Green of a ploughed Field, near half a Mile from any House, where it was never yet watered by me; and yet, I think, it is as flourishing a Tree as most in *England* of its Age: But I must needs say, Where a Well can be conveniently sunk, not exceeding thirty Foot deep, there an Elm-Pump may be placed, to supply by a Water-Cart, and Leather-Pipe, the Growth of this new Plantation; and then it is likely they will get the Start by much of those Trees that are not thus artificially watered.

If it is arable Ground, whereon you are to plant these Elms, then it should be first manured very well with old rotten Dung, and ploughed several Times, 'till it be got into a perfect Sweetness, Hollowness, and Fineness; on this plant the Trees even, upon the very Surface; and then bring good Mould,
and

and raise a Border after the same Manner as before directed.

Such a Plantation may be contrived to great Profit, by planting the Trees in regular Rows, in *October* or *February*; and the Ground about them laid down with Grass, and not imploy'd in Grain, which, in my humble Opinion, is far preferable, as I have found by Experience; because this will feed Sheep, whose Dung is of most Virtue in the Nourishment of all Trees, and are less capable of hurting them by their Rub, than Horse or Cow; but then especial Care must be had, that they cannot come at the Body of the Tree with their oily Wooll: Nor will the Roots of this Tree exhaust, and draw away the Goodness of the adjacent Earth, as an Ash or Oak will, whose Roots run both deeper and broader in the Ground; but affords a pleasant healthful Shade, by its Head and Body, to the Cattle about it; free from those voracious and insidious Qualities, inherent to the Oak, Ash, and Walnut. These Trees then so planted (with their Heads cut off, or some left on, as the Proportion of their Roots will admit of) will amount to one hundred and eight on an Acre, at twenty Foot asunder, which at their full Growth modestly may be computed worth forty Shillings each, at one Shilling *per* Foot, though the current Price is from ten Pence to eighteen Pence, according to the Clearness and Goodness of the Body; which with the Benefit of the Grass between them, must amount to a brave Sum in that Time; considering such Land whereon they are planted, may not be worth six or eight Shillings an Acre; and indeed, it is Pity that more Hedges-rows are not planted with Elms; because, as I said before, they do not damage any Thing about them, as some other Trees do, whose Heads must not be trimmed up as these may, and yet so profitable, as to be worth in Time five or six Acres of Land, that they may thus inclose.

This

This Tree when aged, or otherwise requiring a Renovation, by cutting off its Arms and Head, they then should be cut close to its Body, else the Stumps in Time will become rotten, and convey the Water too freely, even to the Heart of the Elm.

As the Elm is not a proper Plant for raising entire Hedges to fence our Field with, I shall desist enlarging thereon, as being a Subject rather belonging to the Gardener's Province, where it is now more agreeable in Hedges for Walks, Avenues, &c. for, according to the Proverb, A Shoemaker ought not to go beyond his Last: 'Tis therefore that I think, a Gardener and Farmer are different Professions, altho' their Business has an immediate Concern in Vegetables, and I believe are equally Strangers to each others Affairs.

Elm Boards, to dry soon, were cut in *March*, and laid a Month in Water: Others were kept out of Water, and dried; they were both laid on one Floor, before Harvest Time; the unsoak'd shrunk, when the other did not; so that to have them soon and thorough dried, soak them first. Elm is more profitable to plant even in a wetish Vale-Ground, than White Wood: A Person in the Parish of *Ivinghoe*, in *Bucks*, planted an Elm himself, and at sixty Years old he cut it down, with a hundred Foot in it; that he sold, at one Shilling *per* Foot. He also planted a White Wood Tree, that at sixty Years End was as big as the Elm, but it was hollow about three Foot from the Root, though all the rest was sound. It is true, that a White Wood often out-runs the Elm; but then as the latter sells for one Shilling a Foot, when the other but for six Pence, the Elm is the most valuable to the Owner.----An Elm strikes his Roots as deep into the Ground as an Oak, with sometimes one Fork, sometimes two or three; and therefore does not impoverish the Land like an Ash, that spreads more its Roots, and runs up higher than any other.

other. The Elms Roots, especially in Winter, are the most slimy of any; a Man dug twelve Foot to come at the End of them, but he gave over his Search in Despair: This was in a gravelly Soil, at *Frithefden*, in which Sort of Ground it grows the more spalt or brittle of any, insomuch that the Wheeler is apt to refuse buying it, to make his Stocks of Wheels; because it often splits in straining, when that which comes off Clay-Lands, will not: It also grows more hollow here, than in the red Clays; and so it does in their marly soft Earths.

-----An Elm was cut down in Winter, and at the next Spring it threw out young Shoots all over it.

—— If the Top of an Elm is no broader than the Head of a Broom, it will grow as well as if it was ever so large; which makes them right to grow in Hedges, where, at a moderate Distance, they will do no Harm: For this Reason it is, that many, when they plant young Elms, put their Roots into the Ground with a Body twelve Foot high, the Side-shoots trimmed pretty close, and the Head very narrow. — The Owner of a considerable Estate, in *Oxfordshire*, told me, He was sure an Elm would not grow so fast in wet Ground as an Oak. — Elm and Maple are first out in the Spring, and their Sap will run out of their Roots at any Time in Winter, if cut.





C H A P. IV.

The Nature and Improvement of the
WITCH-ELM.

THIS Tree is a most proper one to grow in Parks, because of its agreeable Bark, which the Deer greatly eat in the Winter, and have so great a Love for it, that they will string it with their Mouths to the last Bit, and prefer it to the Ash, Thorn, or any others : It is a Tree that grows to a great Bigness; even to four or five Foot Diameter in its Body, and will prosper either in Standard, Pollard, or in Stems, in Copses, or Hedges, where they will grow in many fine, high, strait Poles, and they will shoot expeditiously and large : The Wood of this Tree is rougher, and more durable, than the common Elm, and serves to make Coach-Footings, Gates of Fields, Somer and Joyfts, &c.

This is reckoned as fast a Grower as any, even the Sallow itself; for it spreads its Roots near the Surface like an Ash, in Clays, Gravels, and Loams; throws up Plenty of Suckers, like an Aps or *Dutch Arbel*, which is also a Quality incident to the natural Elm.





C H A P. V.

The Nature and Improvement of the ASH.

THIS is a most useful Wood to the Coach-maker, Wheeler, Cooper, and Numbers of other Artificers, and is one of the quick Growers; because its Roots, if high enough planted on the Ground, will run and spread in the uppermost Part of the Earth, beyond any other; and therefore it is become a Rule amongst the Judicious, not to plant or suffer any Ash to grow near any ploughed Ground, because of its voracious Nature, and the great Suction it makes in drawing out the Goodness and Heart of the Ground, to the Depauperating the Land, Corn, and Grass, that is in Reach of his horizontal Roots; and yet this Evil is very common, but chiefly owing to the Ignorance of the past Age; however, it has so deterred many of the present, that they abhor the Sight of an Ash that grows near the Corn-Grounds; wherefore, to avoid the Curse, and enjoy the Blessing, the best Places to procure the Growth of Ash, is in Forests, Woods, Coppices, Parks, and Commons.

To get a Wood, or Copse of Ash, it may be done three several Ways. First, by sowing their Seeds or Keys (that have been preserved all the Winter in moist Sand, to keep them from thriving) over a Piece of well manured and ploughed Ground, which must immediately be sown over again with Barly: These two will so well agree, as not to hurt each other; for the Ash will not appear 'till the succeeding Spring, so that the Barly may be
got

got off as at other Times ; after which the young Ashes may be houghed and thinned at Pleasure.

Secondly, But which I think is much better, when the young Ashen-Trees are sown, there may at the same Time be sowed both Acorns and sweet *Portugal* Chestnuts ; these likewise will be of hardly any Prejudice to the Corn, because in the first Summer they will only be employed in striking Root ; under the propitious Shade and Shelter of the Barly ; and if a little of the Seeds of the Acorn or Chestnut should appear at Mowing-Time, the Scythe may easily pass over them : Now these two Sorts are certainly the properest to keep the Ash Company, by Reason they strike their Tap or Master-Roots very deep into the Earth, to seek their Food in a different Manner from the Ashes, that may be left at five Foot Distance each ; and then one thousand seven hundred and sixteen will grow on an Acre of Ground.

Thirdly, If it is thought better to get a Wood from the Set, or young transplanted Tree ; then the Keys may be gathered in *October* or *November*, and directly sowed on fine Mould in a Nursery, and covered an Inch or two deep with Earth ; the second Spring following they will come up, and afterwards may be transplanted in another Bed, and so brought up to your Desire : But here we gather the young Sets out of our Woods, about a Foot, or a Foot and a half long, or more, and transplant them forthwith : In this Management, great Care should be taken to get both them and the Keys from the Female-Ash, because that grows much sooner to a large Body than the Male ; now the Female has generally a clear, white, smooth Bark, but few or no Keys, and loves low Places : The Male has a rougher knottier Bark, and harder Wood ; has more Seed, and is more tedious in its Growth. It was about ten Months since, that an Acquaintance of mine bought an Ash at *North-Church Common*, that contained six

hundred Foot, four hundred and thirty-eight of which, he paid one Shilling *per* Foot for.

Now the Method of planting a Copse Wood, I have seen in a Gentleman's Ground near me; first they manured it very well, and ploughed it into a fine Tilth; then they gathered it with the Plough into Ridges, at six Foot Distance, whereon in *October* they planted Ashes, at twenty Foot asunder in Lines, and Oak, Chestnut, Hazel, Sallow, in the same Row close together; the Ashes were about eight Foot high, the rest small Sets; these all drawing their Nourishment from the Earth in a Manner peculiar to each other, does not so depauperate it, as if they were all one Kind, notwithstanding they fill all the Surface with their Roots; and therefore a Copse Wood promiscuously planted, will endure much longer than if it was all of one Sort; and here is an Opportunity allowed between the Rows, for the Hough to be employed, and the Ground kept clean from Weeds, and Manure laid in their Interspaces, to the great Improvement of their Growth; and by this the Trees will force one another into the Air, caused by their close Planting; where, by the Drip of their Heads falling upon their Under-shoots, and the great Cover they are shaded with, their lower Arms will be killed or spoiled, so that their Sap will be chiefly employed in the Growth of their Bodies and Heads; and then the Underwood will be fit to fell, in nine, twelve, or fifteen Years, as it is wanted in Bigness; the proper Time for which is from *November* to the Beginning of *March*: But here I must take Notice of a pernicious Neglect, that too frequently happens to the Ash-Poles, which are generally put together after they are cut into upright Parcels in the Wood, and there let remain 'till they are sold: Now if they are not carried away before *March*, a little black Fly, that comes in Swarms about that Time, or in *April*, will seize on and penetrate into their

their tender Bark, and there in a little Time become a small Worm, that afterwards will gnaw the Wood in Rings, so that the Cooper cannot bend them for Hoops; but when the Fly has but just taken them, the Cure is to throw them into a Pond, and let them lie two or three Days, 'till they burst and die. But the best Prevention of all, is to keep them in Cover presently after they are felled.

Of the Pollard-Ash.

ON Commons, in Parks, or in any other Grass Grounds, this Tree has an Advantage of all others from its many and long Roots, which by their circular Spread, and high Lying almost on the Top of the Ground, are more than ordinarily capacitated to receive the fertile Benefits of the Horse, Cows, Deers, and Sheeps Dung and Stale, which is more or less obtained as the Situation of the Tree, and its sheltring Tread invites the Cattle to shade themselves under it. The Pollard-Ash is that which is made by cutting off the Standard's Head, and should be kept for that Purpose, before it arrives to a very great Body; else the Wets will be very apt to get in between the Rind and the Body, before the Wound can obtain a new Covering, and so rot and perish the whole Tree in a short Time; and afterwards all Lops should be cut off the Head of the Pollard, at nine or almost at twelve Years End, before the Shoots get too big; for certainly, the younger they are cut off, the sooner the Wound is covered, and the longer it will continue in a healthful bearing State; but it has been observed that the Ash, as well as all other Sorts of Pollards, grows slower in its Body, than they did when Standards; because the Sap which should cause its Bulk, is employed in nourishing new Shoots. This Lop, when green, burns the best of any, which makes the Country Folks
rhime

rhime it, and say, *It's Fire for a Queen*. It is also of a vast Service among Deer, especially in hard Weather, when it serves as a Sort of Subsistence to them; for on its soft Bark, both they and the tender-mouth'd Heifer will bruise and peel the Arms and Boughs quite clean.

If you cut off the Head of a young Ash, to make it a Pollard, it will grow larger in its Body afterwards, but not so fast as if its first Head was on.---- If you cut an Ash down in the Spring, when the large black Bud is on it, the Body will rot into Powder in little more than a Year's Time, which shews that Winter-felling is best for this Tree.-----An Ash has the biggest Veins of any Tree, and a Heart and Sap-Part like an Oak. Some are of Opinion, that an Ash is best felled between *Allbollantide* and *Cbristmas*; because it is the first and forwardest Sap that stirs. If felled when it is in Motion, it will be red between the Bark and the Body.

Of Ashen Stems.

IN many Hedges, Numbers of these are seen to grow, as the Successors of cut down Trees, but whether they are here by Casualty, or planted on Purpose for this Use, it is wrong Management; for these Shoots that grow directly from the Stem, rob their Neighbour Plants so much by their luxuriant Roots, as to impede and hinder their keeping Pace in Growth with them, which causes its Head to spread, top, and drip on them, to their great Prejudice: It is these that are more coveted by Cattle, beyond any other in the Hedge, and therefore more liable to be cropped and stunted, which obliges us to preserve them for the first two Years after cutting, 'till they are out of the Cattle's Reach, though at best they make but a hollow Part in the Hedge, and often give Room to Sheep and other Beasts to find a Passage in-
to

to neighbouring Grounds; so that the Ashen Stems are indeed fit to grow no where else but in Woods and Coppices, and here they turn to a great Account, in the Production of the best of Poles for the Coopers and Chair-makers, by letting them stand eighteen Years, which is twice the Time that is allowed to Sallows, Hazels, Maples, &c.

Of the Standard-Ash.

THIS is still more pernicious in a Hedge than either the Pollard or Stem; for this, by its uninterrupted Growth, gets a greater Head than the rest, and so is more capable, by its venomous Drip, to damage all others that are contiguous and inferior to it. But here the ill Property of the Ash does not end, for its Leaves are of such a disagreeable Nature (I cannot say how unwholesome) that I have known a considerable Quantity of Stout-beer spoiled, by brewing with Pond-water, wherein its Leaves fell; and notwithstanding the Beer had above a Year's Age, yet neither that, nor the Strength of the Hop, were able to take off the Leaf's nauseous Taste.

When this Tree by Mistake has been suffered in a Hedge, or otherwise, to grow so near the ploughed Ground, as to prejudice the Land and the Grain that grows thereon, by its Roots; then the best Remedy next to its total Extirpation is, to dig a narrow Ditch, and with a Mattock to cut off all its Roots to the Outside of the ploughed Ground for about a Foot or two deep, which is full enough; because at a greater Depth they cannot hurt the superficial Part of the Earth; then fill in the same with the Mould that came out: Thus you may keep any Ash from hurting the Land, especially if there is a Baulk of Grass between the ploughed Land and the Body of the Tree, as there is in most of our *Hertfordshire* Inclosures.

And notwithstanding this Tree is known to spread beyond all others, yet some of its Roots have been found to run fifteen Foot deep into the Ground, and will, like most others, grow faster in the best Earth, which it will infallibly peel, though it will grow in most Situations, from the Tops of Hills to the Flats of Vales; and where a knotty sound Tree happens (as they often do) to be well grain'd, they are of considerable Worth to the Cabinet-maker.

The Seed that is in the Keys are flat, somewhat like that of a Cucumber, and is carried by the Winds, the Distance of some Poles from their Trees; but this is not all their Conveyance, for these Seeds being much loved by the great and small Birds, are by them carried to distant Places, where they peck out some, and scatter the rest; and in this Manner they have been known to feed a Piece of Ground at *Dagnal*, near half a Mile of the Wood, where the Trees grow: Some again have enjoy'd Plantations from the Seeds that were blown by Winds; others have had the Benefit of some Thousands of Pounds from their Produce, and all of their own Planting.

The Rinds and Tops of the young Ashes, even when the Trees are a Foot Diameter in Body, are so coveted by the red and fallow Deer, that large high Rails are frequently put up in Parks, Forests and Chaces, as Guards against these arch Enemies; Sheep also will debark the young Trees and Shoots in Hedges more eagerly when they are fattening on Turneps, as being a cool, refreshing Food, contrary to the hot bitter Turnep. The Mice too, tho' a small Creature, are great Destroyers of the young Ash at all Times, but more in Snows; for then the Woodmen have observed that they have peeled an Ash, from the Thickness of a Thumb to a Fork-stale, a Foot above Ground.

C H A P. VI.

The Nature, and Improvement of the
WALNUT.

THIS Tree, for the many Uses its Wood and Fruit affords, deserves the Preference to some others for a Plantation ; and now more than ordinary, because of the great Numbers that are frequently fell'd for the Lucre of the Money that their valuable Bodies raises to Successors of better Husbands than themselves ; their Price being from one, to two or three Shillings the solid Foot, according to the Fineness of its hearted Grain, in Trunk and Root at Forty or sixty Years old, when these Trees are generally at their full Perfection ; and sometimes one of them are sold to the Cabinet-maker for thirty, forty, or fifty Pounds ; and as the Root is often a valuable Part of this Tree, it should not be sawed or cut down at Bottom, but stock'd and grubb'd entirely up. Nor is the sappy Part without its great Uses in Stocks of Guns, Chairs, Wainscot, and other Works, that the several Artificers make exquisitely fine, when done over with its own Oil very hot, made by Expression of the Kernels, that are said to yield three Quarts from a Bushel of its Nuts ; these may also be preserved for eating, in cover'd Pots put into the Ground, so that the Wets cannot annoy them, and then they'll keep nine or ten Months, and eat near as well as at first ; or if they happen to be dry, it's only putting them in warm Water a little while, and the Kernel will swell, and be almost as good as ever.

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Their Sorts are two, the *English* and the *French*, the latter is a large, thick-shell'd one, and is best for pickling or preserving; the former a smaller Sort, but much sweeter kernell'd, and may be planted in Grass Grounds at forty or sixty Foot Distance, by taking off the Turf and laying it by itself; then take the next Mould a Spit deep, and put that by itself; then put the Turf the Grass downwards, and the Mould that came out on that; in which put four or five Walnuts so far within the Earth as it may just cover them, if the Diameter of the Hole is three or four Foot: These Holes thus made and planted, must be securely fenced by outside, general Railing the Field in, or particularly round each Hole, so that there may be free Access of weeding them; afterwards the Master-plant may be left as a Standard-tree, that in Time will make both pleasant and profitable Walks; and thus this Tree will by far outgrow all transplanted ones, as I have to my Cost experienced; for it is now near twelve Years since, that I was tempted to purchase a Parcel of about twenty Years old of a Nursery-man, some of which, to the best of my Belief, as big then as now in their Bodies, notwithstanding I planted them in a rich Loam, and three Years ago cut their Heads off, leaving at the same Time a few Shoots on, to draw up the Sap; since which they have shot very strong, and now are like to make fine Trees: But if the Nut had been thirty-two Years ago put into the Spot of Ground where they now grow, I doubt not they would have been a Foot or more in Diameter of their Bodies, which are not above six Inches in the biggest of them.

Or if they are to grow in ploughed Grounds, then it must be well manured and ploughed fine, before the Nuts are set in at Nature's best Time, which is as soon as they are full ripe; or if kept till Spring, they must be preserved in Sand all the Winter, and
by

Improvement of the WALNUT. 67

by some they are steep'd a while in Milk, just before they are planted in *February*, and then they will agree and thrive best in marly Grounds in the Vale; and also will grow in Chalks, Gravels, and Loams, and in most Situations. And as I am now writing of planting Walnuts in ploughed Grounds, it is necessary to mention the great Inconvenience that attends the ploughing of the Ground between them, which by Consequence must happen, altho' the Trees be at eighty Foot Distance, and that from the often Passings; and near Approaches of the Plough, Horses, and Harrows: And here I will appeal from the Theory Writer, to the Man of better Judgment, Whether the Roots of such a Tree, that is to run even with, or just under the Surface, can make its horizontal Roots, and not be impeded by the often Repassings of the Plough, that should penetrate the Earth with its Coulter and Sharr, a Foot deep at least in some Sort of its Operations? If it should be objected, that at that Distance they need not come so near as to hurt them: I answer, That such a Plantation is liable to be hurt by so many Accidents that may happen from the Horses, Ploughs, Carts, End-turnings, and careless Drivers, as is enough (in my Opinion) to discourage any such Undertakings: I must own I have seen some such Practice in the old *Kentish* Orchards; but it must needs be, where Trees have been planted too deep at first, for want of better Skill, which is the Reverse of the present Management; and therefore I advise, all such Ground in the Interspaces, to be sown with Clover and fine Meadow Hay-seed, &c. in order for making such arable Land a good Sward.

So also for that wrong Notion of planting these Trees in Hedges, contrary to the Rules of good Husbandry, as is well known to those Occupiers of Farms, whose Interests are concerned in the Returns of their Wood and safe Fencing, that the thick, tall

Growth of the Hedge is the sole Occasion of: Now both these great Benefits, I will prove, are in Part destroy'd by such Trees; for, first, the Drip of all Heads of Trees are more or less pernicious to the Under-shoots, as they are narrower or broader, and of a good or bad Sort; this is often visible in the thicker Woods, where the lower Arm (as I have said before) and Branches are rotted by the Shade and Fall of Water from the upper Boughs; so that only the Top Part of the Tree thrives, that enjoys a free Air and Sun; and thus it is in Proportion with all Hedge-wood, that is under a Tree's shady, dripping Cover.

Secondly, The Roots of such Trees, by their Bigness and Extent, have a superior Power to imbibe and attract the Fertility of the contiguous Earth, whereby the Underwood is hindered in its Growth; and here it is that Cattle takes the Advantage of such weak, crippled Boughs, to make a Breach into neighbouring Grounds, where in one Night's Time five or six Cows or Horses, or a Flock of Sheep, may do twenty Pounds Damage; but this is not all, for Boys and others generally spoil a Hedge to come at the Fruit, as being encouraged thereto by this remote Planting, and free Access.

And for these Reasons it is, that many are so far from raising Trees (the Fruit Sort especially) in Hedges, that they have destroy'd great Numbers that have been found planted by their Predecessors. For I have known a Hedge, where of Sallow and White Thorn have grown without the Interruption of Trees, that forty Poles at nine Years End has returned four hundred Faggots, worth twelve Shillings a hundred.

Indeed, where a Person is resolved to multiply Wood in Hedges, and prefer his Fancy to his Interest, then I must confess that an Elm from its narrow Head that it may be kept to, either by the Cut
of

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of the Bill, or close Planting, or from its small Leaf, will do less Prejudice than many others. And likewise the Black Cherry-tree, by the Farmers in this Country, is deemed to do the least Harm in a Hedge of any Fruit-tree; because the Drip of this gummy Tree is not so insidious and venomous to its Underwood, as is the Ash, Walnut, &c.

It is therefore that I have been induced to plant several Rows of Trees on grass Baulks, or hedge Greens of ploughed Fields, within about six Foot of the Hedge; and that because their Roots may the better enjoy the Virgin Mould under the Turf, and the Benefits of the Highway or Ditch, that in Time they may penetrate into, without any considerable Hurt to the Hedge from their Roots or Heads; here also they are more safe from the Rapine of Thieves; the Fruit more commodiously gathered; the Windfalls better secured, and the Cattle more conveniently lie and shade themselves under their Boughs, to the great enriching of such Trees by their Stale and Dung.



CHAP. VII.

The Nature and Improvement of the BLACK CHERRY, &c.

Several good Properties of this Tree having slip'd the Knowledge and Notice of Authors both ancient and modern, I shall be the more singular in the illustration thereof; and because this County of *Hertford* does certainly more abound in Plantations of the common Black Cherry Tree, than any other in *England*, and particularly the western Part,

Part where I now live, is as famous for the black, as *Kent* is for the red or flemish Cherry; and this I cannot do, I think, in a better Manner, than to insert the Copy of a Case I drew up above a Year since on that Account; viz.

REASONS humbly offer'd in Behalf of the Counties of Hertford, Bucks, Kent, &c. for encouraging the Growth of the Black and other Cherry Trees.

THAT by the late Act of Parliament for prohibiting the Consumption of the Black and other Cherries, the said Counties are miserably distress'd; for that the Black Cherry in particular, having many singular Advantages belonging to it, is, by the Disuse of it in compound Liquors, render'd of little or no Service.

Whereas this Fruit is in itself of that healthful and cordial Nature, that it is a Corrector of several Sorts of Liquors, particularly in Molosses and Malt Brandies; also in Beer their Excellency is found, as well as in the wholesome Wines, Syrups, and distill'd Waters that are made of them, whose medicinal Qualities are best known to the Physician, Apothecary, &c.

The black, wild Cherry, for many Years past, have been a Sort of Harvest, both to the Owner and the Poor; to the first, in that it is a Fruit that most opportunely precedes the Corn Harvest, and thereby is of such Consequence to the Farmer's Interest, that it often returns Money enough to defray the Charge of Inning his general Harvest: The latter are employ'd in gathering them as they successively ripen, and so become a Subsistence for some Time to their poor Families.

The Higgler also that buys them, shares in their Advantage by turning the Penny at the *London Market*,

Improvement of the Black Cherry Tree. 71.

ket, where they are generally retail'd twice, and where the Distiller used to furnish himself for making a Spirit from this Fruit, and correcting his Brandies by their salubrious Infusions.

The Black Cherry in particular is also endowed with several beneficial Qualities ; for it is a Wood that is next serviceable to the Oak, for the inside Buildings of Houses, Barns, &c. And because of its long Duration and Strength, is of Service to the Commonwealth in general ; and for its fine red Colour, which is increased by letting it lie two or three Years on the Ground after it is cut down ; and then it so neatly counterfeits Mohogany Wood, as hardly to be discern'd in the Difference, both in its Grain and Colour, by the Help of a certain Liquor that the Joyner stains it with.

Again, this Tree, of all others, is the most common, and the easiest introduced into our Woods and Plantations ; here the Rooks, Jays, and other Fowl bring and eat the Cherry they collect at some Distance ; the Stone whereof falling to the Ground in a moist shady Place, comes up spontaneously and better than if planted, and often thereby obtains a luxuriant Tap-root ; from hence, as from a Nursery, we are supplied with healthful, thriving Trees, which we plant upon our Commons, and in our Fields, in regular Rows, and there improve them by grafting and budding with Variety of the best Sorts, which of late several have been found to bear constantly on these Standards ; as the May-duke, White-hart, Black-Orleance, and the Morella ; and this last, which is the latest of Cherries, has a peculiar Quality belonging to it ; it is this that make the most pleasant Cherry Brandy of all others by its Infusion, even to come up very near to the Liquor call'd *Turkish* Visney, that used to be sold at *London* for twenty Shillings *per* Gallon : besides, the Black Cherry Tree on a proper Soil, and when right planted,

planted, is of so quick a Growth, that we reckon it is at best in about forty Years, from the Time of transplanting.

And, but in the Year 1730, there happen'd many miserable Instances of Discouragement, that this fine, useful Fruit met with; one being by a Tenant between *Chipperfield* and *Rickmansworth* in this County, who paid in Part of his Rent twenty-five Pounds *per Annum* for his Cherry Plantation; and after having gather'd such a Quantity as to lose five Pounds by them, call'd several of his Neighbours to view the remaining Part left on the Trees; and, as I am told, they computed them to be about two thousand Dozen, which he left to spoil, as not defraying the Charge of gathering: And near *Watford* there are some that have paid above thirty Pounds a Year to Cherry Gatherers (as I am credibly inform'd) and my very next Neighbour has received ten Pounds in one Season clear of all Charges, for Black, wild Cherries, though his Farm is worth but fifty Pounds a Year; and I can say, that I have sold the Fruit only of one Tree for a Guinea, and the Buyer gather'd the Cherries.

And not a little has been the Cry of the Poor, as well as well as the Complaints of the Farmers; and I doubt not but those Landlords who are concern'd in Cherry Grounds will be more sensible of this, when their Rents sink, which is now more likely than ever.

These Trees we transplant out of the Woods at seven or eight Foot high, and about two or three Inches Diameter, in *October* or *February*, without their Heads, which forwards their making new Roots; so that the second Year following (and sometimes the first) about a Fortnight after *Midsummer*, we bud on their new Shoots, what Sort is liked best; by taking the largest Buds about an Inch in Length off the strongest, upright Shoots, and with
a very

a very quick Slight, before the Sap is dry, put them into a little Incision of that Size first made in the Bark, like a reversed J, on which Nicety depends very much the goop or bad Growth of the After-head; this we bind about with Yarn very exact, that all Parts of the Bud and Bark about it, may touch and receive a Communication of the Tree's Sap; then at a Month's End, we take the Thing very gently off; and about *Christmas* after that, cut the new budded Shoot off, four or six Inches higher than the Bud, on the contrary Side, with a Slope that the Water may not descend on the Bud, which likewise must afterwards be kept free from all natural Shoots that will be sure to make their Attempts.

There are many Sorts of Cherries; as the Kerroons, Orleans, Morella, Great-purple, Little-may, Crown, Cadilliac, Pomegranate, Carnation, Egriot, Merry, Cluster, Spanish, Amber, Nonsuch, Naples, Biggarraux, King's, Prince-royal, Arch-duke, Common-duke, May-duke, Biquar, and Dwarf: The four Sorts of Harts, Lukeward and Gascoyn, besides the Kentish or Flemish Cherry: Of all which Number, I only make use of the Kerroon, Orleans, Carnation, Kentish, the Harts, and the May-duke, and of them I think the Kerroon excels; this is a large, shining Black, with a lesser Stone and more Flesh than the Harts, will thrive in any Sort of our loamy Grounds in the Chiltern, and will best bear a long Carriage; but like the Beech, refuses most Parts of the Vale, and so does all others that I know of, except the May-duke; that lovely, great, red Cherry, that comes early and bears constantly. These budded Cherries are now vastly improved, not only in young, but also in old Trees, whose Heads are cut off about *Christmas*, leaving a few Shoots or Boughs on, to draw up or employ the Sap (otherwise they often die) which the very next Summer

will throw out new Shoots, that may the Summer following be budded to quick Profit, as I have done by several of my own that are now fine Trees. Of these improved Sorts, both young and old, I think I have between two and three hundred growing in my Fields, that annually require to have their Moss rubbed off, and their Hoop-outward Bark just slit down with the Point of a Knife in *April*, so that the inner one be not wounded, lest the Gum issue out, and the Tree die or pine: This is of such Consequence, that a Tree will grow in Bulk more in two or three Years when so served, than in fifteen if let alone: But no hot Dungs must ever be used to the Roots of this Tree, for it is entirely contrary to the Nature of the Cherry, that always affects cold Soils more than warm ones.

These, as well as some other Trees, sometimes suffer by the Honey-dews in the latter Part of the Spring, and in Summer, by their falling on the Leaves, and there, by its corrosive Nature, furls them up, and breeds the green and other Flies, that afterwards greatly hurt the Fruits of the Earth, and the Cherry in particular, and are called by the Country-folks *Ladlemen*, because they hollow the Cherry by their bite, and cause it to fall; these and Caterpillars will sometimes so feed on the very Leaves, that they will be almost eaten up. The best Cure for this is burning Straw under the Tree, or throwing or spourting a Quantity of Water on it. There is also another Blight, occasioned by the easterly and other Winds in the Spring; these will sometimes, by their frigid Potency, oblige the Leaves to turn yellow and fall off, so that the Tree will be almost naked at the Approach of Winter; whereby the Blossom or Fruit often falls from the Tree, or grows small and insipid. Another Blight there is by the Vapour, Fogg, or Mists that arise from low Grounds, that in the Spring are often fatal to young Fruits;

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Improvement of the HORNBEAN. 75

it was these that spoiled my Cherries this last Season, 1732, that grew in my bottom Grounds, which lying more from the Sun's Influence than the Hills, the Frosts, and these by their long Continuance in this Situation, prov'd destructive to the Fruit, tho' so late as in the Month of *May*.

In short, this Tree grows largest and quickest in Hedges, because here its Roots meet with their desired Shade, for this loves cool Places and cold Grounds. Its Fruit hangs but a little while on them, about half as long as Pears and Apples, and the Plenty of them in our Country hinders the Boys from striving after them. — They are difficult in taking the Ground on Transplantation, and more subject to Blights than Pears and Apples; and if a Blight succeeds two or three Years together it kills them. — The May-duke, White-hart, and some other budded Cherry Trees, commonly bear so constantly, that it kills them in less than thirty Years.



C H A P. VIII.

The Nature and Improvement of the Hornbean, or Hornbeech.

THIS is in great Reputation for both Copse-hedge and Wood, and is planted in many Parts, but more abundantly about *Wbethamstead* in this County, for its several good Properties, viz. It is a Wood that will grow on poor, hilly, gravelly, and barren Grounds, and much more in a good Soil; but wherever it grows, it runs into fine, high, strait Poles at a moderate Pace, and they very close together, and is not of that pernicious Nature to kill his

Under-neighbour by dipping on its Head; as Sallow, Ash, Hazel, and Maple will, which makes this so advantageous both in Copses and Hedges; for that a great Number of Stems will grow and flourish in a small Quantity of Ground, and in Wood and Hedge will be fit to cut down in nine, twelve, or fifteen Years to good Profit

Besides, in a Hedge in particular, this Wood is, by a strait, regular Plantation of it, no less ornamental than useful; for here its uniform, close, and tall Growth makes it preferable about Walks, Gardens, Parks, and Fields, where it will carry its Leaves to the very Bottom: And here it makes a most noble Fence against the Trespass of Cattle; for, in its Nature, nothing of English Woods excels it for Hardness, but the Box, Yew, &c. the Plaish of it being so strong, that it will lie across in a Hedge like a Rail, and not yield to the Efforts of Horse nor Cow, as several of the afore-mentioned Sorts will, which renders its Poles of great Use in Mills, small Rafters, Heads of Beetles, and Frails, &c. and so far exceeds most other Fire-woods, that when it is burnt enough, the Coals will hold a bright Fire like Charcoal for a long Time.

I found a few Stems in a Cope-wood that I bought fifteen Years ago, but they are not so plentiful here, neither in Stems nor Trees, as in some other Parts: However, our Neighbourhood now have begun planting the Sets in their Hedges at the Time of their making, and are most expeditiously raised by those of an Inch Diameter; these may be also raised from their Seeds sown in *October* or *November* (that are ripe at that Time) in plowed Ground well manured, and in a fine Tilth, or in Furrows made in straight Lines by the Plow at any Distance; or by putting their Sets in a Bank made by throwing up Mould out of a Ditch, in a single or double Row almost close together (for Hedges are seldom too thick as I can find)

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find) which will be an excellent Fence in Grounds of Corn, Grass, or Wood; and by thus planting the Sets, four Years will be got in advance, for the Seed will not appear till the second Spring after sowing. These Sets may be found at the Bottom of Stems, both in Woods and Hedges, and planted in *October*; if in Woods, their Side-shoots must be only pruned off, but not their Top; but in Hedges they should be cut at Setting to six Inches in Length, for then they will grow thick; or to be more sure of a strong Fence, White-thorn may be made every second Plant, as best enduring the Drip and close planting of the Hornbean, and will, by its more short Head, with the Help of an adjoining Ditch, so shade and moisten its Roots, as to contribute not a little to its speedy Growth.

The Seed in its Shape, Bulk, and Colour, is much like that of St. Foyn, and will hang in a Hedge in a mild Winter till *Christmas*. There are some of these Trees of a large Diameter in *Luton Park*, and in some other Places, preserved as Pollard, but are of slow Growths; they will grow under other Trees the best of any. It's reckon'd to pay double the Profit of the Hazel. It is much of the Nature of the Common Beach; for if it is kept abroad wet and dry it will rot in six Years.



° C H A P. IX.

The Nature and Improvement of the LIME Tree.

THE Lime, or Lindon Tree grows very uniform in Rows to a great Bigness, where their Soil is a good Loam, or a Loam with a Clay Bottom, provided

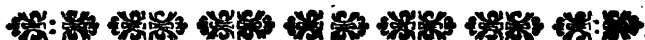
vided it is not in a wettilh Place, for then it's apt to rot its Roots; or if it is a loamy Gravel, they will thrive very fast, but not in a sharp, hungry Sort, for that will starve their Roots; nor in the dry, hot Sands; because in the first Sort, where there is a strong, sound Bottom, they will hold their Leaves till *Michaelmas*, but in the two last, they'll complain and be yellow a Month or two before that Time. The Male and Female have different Productions; the Male has a small Leaf, and a fast, knotty Wood; the Female grows sooner, its Leaves larger, and brings forth fine perfuming Blossoms in the Spring, with reddish Shoots, that gives a strong Invitation for planting before Doors in Town and Country, not only for Pleasure but Health also; as being a very good Cephalick, and Assitant to the Nerves to those that can enjoy enough of its delicious Scents.

It may be propagated by its Seeds, sown directly from the Tree, the latter End of *October*, or preserved in Sand and sown in *February*; or it may be increased by Layers, buried in the Earth with their young Shoot in *October* or *February*, as the Elm is; or transplanted in small Sets taken from Roots of old Trees; or if they are larger, and of a Foot Diameter more or less, they will grow, provided the Heads are cut proportionable to the Roots; and this Caution affects all Trees whatsoever; for if the Head is left on when replanted, as was on it at taking up, it must not be expected that the same Root will carry the same Head without languishing, if not dying entirely; because in this new Situation, the Roots have hard Work to strike in and naturalize themselves; and therefore they ought to have the Help of a light Mould, the better to run into, a little or no Head, that the Roots may shoot the stronger, and transplanted presently, that the Air dry not any of their Roots.

Improvement. of the CHESNUT. 79

The Lime will not make proper Hedges for Fields, yet for Walks and Gardens it will answer very well in a close and beautiful Growth, but best of all in fine Avenues, at twenty or forty Foot Distance, and they will not only make pleasant Walks, but also prove a noble Shade and Shelter from Blights and Severities of Weather; if planted on the East or North-side of a House or Garden, as those are in *Asbridge Park*, where a long Row of tall Limes at ten Foot Distance now grow, that measures three Foot Diameter at Bottom, and were there first set in the Year 1660, on a loamy, high Ground, under which, about a Foot or eighteen Inches deep, is a red Clay.

This Wood is of a soft Nature, and therefore used by the Heel-maker, Carver, and some others.



CH A P. X.

The Nature and Improvement of the HORSE-CHESNUT.

I Was acquainted with one that had formerly been a Gardener under Mr. *London* and Mr. *Wise*, and lived about a Mile from me, who about twenty Years ago put some of the Nuts of this Tree into Drills, or Holes, in a rich Garden Mould five Inches deep, a Foot asunder, and in Rows a Foot apart; these, after two Years, were transplanted in a Nursery, in Lines two Foot Distance, and about four Foot from one another, first cutting off their downright Tap-roots; here they remained 'till they were seven or eight Foot high, and then transplanted where they now are; some of them grow in a circular Manner
at

at twelve Foot Distance, and enclose a Piece of Ground where Carpenters work; the rest were planted close to Park Pales at ten Foot asunder, to serve in Time instead of Posts to support and fasten them to; for this Wood, like Ash, will suffer Mortaises in their Bodies without complaining, as all the Cherry and other gummy Sorts will; and altho' it is but twelve Years since their being fix'd for good, they some of them are now above eight Inches Diameter.

The Top or leading Shoot should never be cut off in Standards, only some of the Side-ones just before they leaf, may be pruned away to keep their Heads thin, and to prevent the Wind's Damage, that is often fatal to some of the Arms of this spalt, brittle Wood that I have seen broke off, when almost all others have escaped. But where Hedges of this are planted for Ornament, at four Foot Distance each Set, several of their upper Buds must be annually cut off with the Knife, and not the Sheers, to make them grow thick and strong.

This Tree is of so quick a Growth, that it has been observed to shoot an Inch in Length in twenty-four Hours in all its Branches, which was proved by the afore said Gardener, by tying a Stick even with the Twigg; but this fast Running is partly over after *April* and *May*. They will also grow to a large Bigness, as may be seen by those in *Cashiobury* Park. They will prosper in our cold Country on dry Banks, and on Mould that have Clay or gravelly Bottoms, but best in the richest Earth.

In Hedge or Standards, it is excellent to the Eye at the Spring, when its clammy turpentine But breaks forth into curious, divided, hanging Leaves, and bear Clusters of beautiful Flowers, that perfume the ambient Air, and after that, a pleasant Sight by their great brown Nuts.

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The Fruit of this Tree, which is ripe in *October* and *November*, may be rendered still more serviceable than it is. For, by the Bitterness of its Taste, the Deer and Swine does not care to eat it. To cure which, put them into an old Sugar or other Cask that is loose jointed, and let it lie in a large Pond, or better in a River, two or three Days, and you will find the Water to have extracted their Bitterness, so that they will become an agreeable nutritious Food, both for Deer and Swine, &c.

I shall conclude this Subject with an Expression from a *Swiss* that I knew, who brought these Nuts in his Pocket at first from *Windsor*, that now are fine Trees; says he in *French*, *Je suis surpris quand je pense que je porte toutes ces Arbres a-la-fois dans ma Poche*. That is, It moves my Wonder, to think, that I carried at once all these fine Trees in my Pocket.



CH A P. XI.

The Nature and Improvement of the Sweet CHESNUT.

THIS Tree grows well, but not so fast as the Horse-Chesnut; and is so much like the Oak in Sap and Heart, that it is hard to be distinguished, and will answer to the same Purpose in many Things. The Laths also of this are sold for the same Price as those of Oak. A Barn of this Wood is now standing, as I am informed, at 'Squire *Snell's*, near *Cony*, that have brought the very Carpenter under a Mistake in his Guess. In *Asbridge* Park, one of these Trees was felled about fourteen Years since,

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that out-measured all others there in its Diameter, and many of them are now growing in *Goffunbury* Park, by *St. Alban's*, and at *Penly* near me.

In Copses they will yield most fine tuff Poles, that serve for Hop-grounds, Fork-stales, &c. where, if it be well looked after, will in about twenty Years get up to a small Timber, and return a pleasant ripe Fruit in *October*, that now-a-days are in much Request either roasted or boiled, and eat alone, or with Pork, as Potatoes are; and in several other Fashions. It is a Tree that is very hardy, will grow on Mould with a Clay-Bottom, or in sandy or other Loams, in any cold bleak Place, where it will stand firm by its strong Tap-Roots, and therefore may be made a Shelter against the North or East Winds, or planted in Avenues; and to have it thus answer, its Nuts should be sown or planted at the same Time, and in the same Manner as the Acorn is.

If in Copses, then the Ground must be well manured and ploughed into a fine Tilth, and that into Furrows, at six Foot Distance, wherein may be put four or five Chesnuts very near together; then at five Foot asunder as many other Sort, and so forward, and at such Distances may be put in Sollarsets, Ashen-Keys, and Hazel-Nuts, in *October* or *February*, first harrowed cross-ways before the Sets are put in; by this Method they may be drawn and thinned, when at sufficient Heights, leaving only the Master-shoot, and will grow, if kept houghed, very fast, and be fit for felling in twelve Years Time, if the Ground is in good Heart; for it is this that governs the After-success of this Tree, and the Chesnut-poles, as well as good Planting and Cleaning; there may be also left, what Standard and at what Distance is thought fit, always carefully keeping the young Trees pruned close to their Bodies, that their Heads may not shade nor drip on the Under-wood too much; this Way is far beyond that artificial one,
of

Improvement of the MAPLE. 83

of keeping the Nuts in Sand, and planting in Spring, because it is freed from the Risque of Spiring, before the Nut is put into the Ground, and also from unnatural Transplantations; the Fruit is preserved in dry earthen Pots, kept very close in a dry cold Place.

The Sap of the sweet Chestnut-Tree is whiter, the Heart browner, and the Grain broader than an Oak; by which three Signs it is known from the Wood of that Tree. This Sort of Chestnut grows not quite so fast as an Elm; but as fast as an Ash, and faster than an Oak.



C H A P. XII

The Nature and Improvement of the MAPLE.

THIS is a Wood frequently found in Copse and Hedges, grows in most Soils, but best in dry Loams, Gravels, or Chalks, and is, for its Lightness, Whiteness, and diapered Knots, excellent for many Uses, well known to several Artificers.

In a Hedge it is accounted a brittle, spalt Wood, and apt to fly before the Ax or Bill, so that there is no such Thing as making it in frosty Weather; but it has this good Property belonging to it, that it will grow with the least Rind that is left to its Plaish or Hambend, of any other.

This Wood being of a light soft Nature, is not so profitable to burn as some are. They are sometimes made Pollards, but make a slow Return that Way; in Standards they seem to do better, because they

they are not subject to those Evils that the Pollard is ; for this being a soft Wood, is apt to let in the Wets after their Toppings, whereby their Bodies often become rotten and hollow : But they answer the best of all in Hedges, because they will here throw up great Numbers of encreasing Shoots, and where they like, will keep Pace with the Sollar and Ash.

This Wood is of more Value than ordinary Woods are, for their diapered Knots and curled Grain, that have given it the Name of the Peacock's Tail ; its white Colour and light Body also renders it a very commodious Sort for Stocks of Guns, Knife-handles, inlaying Musical Instruments, &c. But with us, its chief Use is, in making Trench-Dishes, Spoons, and several other curious Turner's Ware ; and therefore it is, that the Bigness of its Body makes it more valuable, which is much hindered and kept back from the Time it is made a Pollard ; nor should it be trimmed up of its Sides, for it is by these Side-shoots that its fine Knots are increased, which made it in former Days in other Countries more valuable than any other Wood for Tables, &c. which tempted the Ambition of great Men, to be more than ordinarily profuse in the Purchase of those Goods, and Conveniencies that were made of it.

It is a Tree that does not much Damage by its natural Head, because it is seldom very large, no more than its Body ; two Foot being a good Breadth for this Country-Growth, but in some Parts of the Vale they grow faster and bigger than in our Chiltern ; however, at best it is but a slow Grower in all the three Shapes of Standard, Pollard, and Stem ; for which Reason, I think to stock up several of the latter in my Spring-Wood, to make Room for a more profitable Sort : And as to its beautiful White, and Scarlet Keys, I think they are more agreeable in Trees, or Hedges of Walks, or Gardens, where that Pleasure is more valuable, than in Fields that are bet-
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ter furnished by those Sorts, which are far more profitable for Fencing and Fuel.

Where it has Room, it exhausteth the Ground very much, which makes it but a bad Neighbour to some others; it is propagated like the Ash by its Keys, and Sets, and at the same Time.

This Tree, beyond all others that I know of, will run out its Sap in Winter, and is a Sort of Almanack to the Hedger; when on cutting its Plaish in an Hedge, its Sap issues from it, and is a Token to him, that frosty Weather will ensue; and even in a moderate Frost, the Sap will come out, on being cut in any Part of its Body or Branches, and hang in Siecles. It has a very rough thick Bark, which makes me suppose the Sap in this Tree is kept warmer, and therefore thinner than in any other in cold Weather. It will grow under other Trees as well as any.



C H A P. XIII.

The Nature and Improvement of the H A Z E L.

TH E Hazel is a general Wood, both in Coppes and Hedges, and will grow in most Soils and Situations, but best in rich, loamy, and dry Grounds. It is certain they have their good and bad Properties as some others have; for Hoops, Rods, and Poles arise from the Hazel as well as Fruit; on the contrary, this Wood has its Inconveniencies, as growing hollow in a Hedge, and often lets Cattle through into others Grounds; it is not a very speedy Grower,

Grower, and often invites the Filcher to damage its Hedge, by getting the Nuts : It is also observed, that in five Plaithes hardly one lives ; and if the Hedge is not made in nine or twelve Years, the Bodies are apt to die, but it must never be made under nine.

This Wood grows less into Profit, because it has not a very extensive Root to make it answer, and therefore agrees best in Company with the Sallow, which likewise takes up but little Room in the Earth ; and also with the Tap-rooted Sort, that runs deep into the Ground. The Gollins or Catkins of the Hazel appear in *December* ; and their little red Blossoms in *January* ; the former is the Male-plant, and is to the Hazel as the Testicles are to the Animal ; the latter is the Female Part, and receives the Dust of the Gollins that the Wind blows into them, by which the Nut is impregnated.

They are raised by Nuts, sown when ripe, or in the Spring, after being kept the Winter in Sand, or by Suckers from the great Roots, as our Way is here, when we make a new Hedge or thicken old ones. About *Baconsfield* and *Uxbridge* there are great Plantations of Hazel, that return considerable Sums by their Sale to the Hoop-benders, and are also of vast Service to the Thatcher, by its Stretchers, Sprays, and Withs, which much exposes it to the Rapine of Thieves. This reminds me of a Story of one, who having Occasion for some Quantity of them, bid the Workman go about the Country, and get enough for his Use : The Man went ; but returning quickly, the Master said, I hope you have not cut these out of my Wood ! Yes, says the Man, I did, because I could not tell where to go better. There is also another Sort that I have met early in the Morning, with a large Bundle of about six Foot long Pieces, cut out of Hazel-poles in the Wood, which they clandestinely sell : And for much such a Reason I was brought under a Necessity some Years ago, to
stock

Improvement of the FIRR Tree. 87.

stock up one of my Copsle-woods, that grew near a publick Highway, half a Mile from my House, and convert it into arable Ground.

The Kernel of the Nut is more pleasant than wholesome, as is too often experienced, especially by the younger Sort; a sad Instance of which had like to have been verified, in a Servant Boy about fourteen Years old, that then waited on the Rev. Mr. *Colemore*, now Rector of our Parish, who had eaten such a Quantity, that two Physicians were consulted, who order'd Quicksilver to be given him.



CHAP. XIV.

The Nature and Improvement of the FIRR Tree.

OF this Sort, there were several Rows planted about thirty Years ago on our Green or Common, at twenty Foot asunder, that now, by the close Growth and Cover of their Heads, make several delightful, shady, cool Walks in the hottest Time in Summer; and also a pleasant Sight by their ever green Heads all Winter; these have got up thirty Foot high, and are eighteen Inches Diameter of Body: Here they flourish on a high, loamy Mould a Foot deep, under which is a red Clay: Also very near me, grows a fine Silver-firr before our Minister's House, on the same Soil, that was planted about forty Years since, and is now one of the highest Trees in these Parts of two Foot Diameter. This is a most fast Grower in this Sort of Ground, and indeed in almost every other, even in the most Northern Parts of *Great Britain*, if its Roots have Room

Room enough, and its Head kept trimm'd up as it mounts in Height, which will greatly forward its Altitude: For it is certain, this and all other Trees grows sooner and stronger, where they are free from the Encroachment of any other, and can enjoy a full diurnal Discharge of their crude Sap, by Force of the Sun and Air's Attraction; and not only this, but the whole vegetable Kingdom is highly improved, where its Subjects have a frank Opportunity of nocturnal Suctions and Imbibitions of the Aerial, Terrene, and Marine Salts, that both the Earth, Dew, and Water plentifully afford, where there is Room for their Communication; and then the Wind will also have a full Power to shake their Heads, and loosen their Barks and Roots, whereby a natural Perspiration will be the better promoted, which is one main Part of a Tree's Life, and more of its quick Growth; for by the Wind's thus straining the Bark, the Pores of that spongy Substance become more dilated and extended; whereby Transpiration of its crude noxious Juices, receives a more free and open Passage, and easier Room for their Evacuation; not only by this outward Coat, but also by its Fruit and Leaves, and that according as the Heat or Cold is more or less; for by the former, the Sap is prepared to perspire away by rarefying and thinning its Juices; and it is the latter that causes a Condensation, and thickens what remains in the smaller or larger Veins and Vessels: Therefore it is a Query with me, whether the Trees imbibe and receive more and most Supplies by its Bark, than any other Way from the aqueous Air for the like Discharges afterwards. And it is a constant Maxim with the Woodward, that the greater and higher the Head is, the more the Trees thrive, for then the many Parts of its Body-bark, as well as that of its Arms, Boughs, Branches, and numberless Twigs, are exposed to the Potency of the Wind's Strength,

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Strength, that greatly relaxes and loosens the fibrous and stringy Parts of their several Barks and Roots, that best cause those Recepts and Issues that Nature has ordain'd for their Health and Nourishment. I am very sensible, that in entertaining this Notion, I dissent from the Opinion of some Authors, but I cannot go from the Query, when I consider that the Heads of Trees are the most sappy Part of them; which endows their Barks and most of their small Bodies with such hollow, spongy, soft Parts, as makes them fit Receptacles for their aerial, and aqueous, salubrious Subsistence; and that in the greatest Summer Droughts, when all their heated and dried Parts often draw in, and more greedily receive such Quantities of the nightly, dewy Effusions, as supplies the Want of Rain for many Months together; and which makes a greater Lodgment on the Leaves and Barks, as they are more or less rough and spongy; for it may be observed, that the Rain does not run down the Oak and Elm, as it does the Beech and Firr: The Reason, I presume is, that the Imbibition is so great in the dented and hollow Bark, as stops its Currency, which on the smoother one falls with more Velocity; and where the Bark is rougher, the Leaves in some are finer and narrower, as those of the Oak and Elm are; and though the Moss is an Excrecence, and better off a Tree than on, yet while there, it has a strong Retention of the Dews and Rains, by its velvet, shaggy Parts, and helps to communicate the same into the Body, and many Branches and Twigs; and to supply the Want thereof, we frote and rub the Bark with the Back of a Knife, Hair Cloth or otherwise, till it's dilated, opened, and loosened, in order the better to take in and imbibe the Air and Water.

The Leaves also are contracted, and in some Measure furl'd up by the Sun's vehement Attraction, that by Night are expanded for the better Reception

of the Dews ; but whether it be the Leaves or the Bark that most receives the Air, Dews, and Rains, it is certain, they are both concern'd as Vehicles, to convey them to the Roots, and many Vessels appertaining to the Tree. And 'tis as true that there is a Moisture in the fresh, open Air, that the spongy Parts of all Trees and Plants imbibe and take in as Part of their proper Nourishment ; and therefore, it is not the Juices alone that the Roots draw from the Earth that supports a Plant, but the Air also gives it a proportionable Help, else a Tree or Plant kept in a House would subsist there ; but the contrary is plain, that such Plant or Tree would sicken and die, if confined from the fresh Air ; so that though the Earth nourishes at the Root, 'tis the Air and Dews that help in a joint Assistance to bring forth and carry forward their Growth. This hardy, useful, and quick growing Tree, that seldom refuses any Situation or Soil, except the hurlucky Chalks and dry Sands, may be propagated of its Seed that are got out of their hard, tough Branches, by being soaked in warm Water till they open, and then sown in *March* in the Place where they are always to remain : But if they are to be sown in a Nursery first, and then transplanted, they may be order'd as other Seeds are, by raking them in, and covering them with sifting Mould half an Inch thick over them, and in three Years Time they may be removed at Pleasure, in *July* or *August* : However, at best this is but Male-management, and is never so agreeable to the Firr and Pine, as if they grow where this Seed was first sown or set ; and this I have wofully experienced in some Cherry Trees that I transplanted from Woods some Distance from me, which will never make good Trees : First, Because the Roots and small Fibres were many of them broke and confused by the Mattock and Spade in taking up : Secondly, By the Air's drying the several Parts before
I could

I could get them replanted ; and Thirdly, By the Rot and Canker that generally overtakes some of them before they can make their new Roots, whereby Part of their Vessels must be consequently prejudiced, and the Tree crippled in its Growth ever after.

Or the Seeds may be sown broad Cast on well manured and ploughed Grounds, and only harrowed in *October* or *March* ; or in straight Furrows made by the Plough at any Distance that is thought proper. And what encourages the Growth of this Tree it, its being ready for Building in thirty or forty Years ; and therefore, it's pity Plantations are not made of this Wood with all Expedition, on many Estates, where they will grow beyond most others.

In *Scotland* they grow in such Plenty, that the Sheep, &c. browse on their young green Shoots, and on Loppings of old Trees in hard Weather, and prove a very sweet healthful Food for them ; and therefore I should think it serviceable for Deer. This Tree yields a fine Resin and Turpentine : A Person in the Summer-time drove a Shank-nail into one of their Bodies, and it run out two Quarts of Turpentine, from one of fourteen Inches Diameter. The *Christiana* Deals are red hearted with some Sap ; but the white Deals have never any Heart : Therefore, it is thought that these are them they tap for Turpentine. Turpentine like Oil preserves Wood.





CHAP. XV.

The Nature and Improvement of the
SYCAMORE,

THIS Tree is one of the soft, woody Tribe, and therefore grows faster than those, whose Bodies are more close and hard. The biggest that have been known in these Parts, grew some Years since at 'Squire *Copping's* at *Market-street*, that measured above six Foot in its Diameter, and served to enclose a Piece of Ground by Paling, that its Boards made. It also is excellent for the Turner, in making hollow Ware, Trenchers, and Spoons, by Reason of its great Whiteness and Lightness, and sells to them generally for six Pence the solid Foot. It is a beautiful Summer Tree, as appears by its curious, large Boughs and Leaves, that afford a pleasant Shade, and as fine a Sight, when the large Clusters of its Seed makes their pendant Shows in Resemblance of Grapes. It may be increased by its Layers, Keys, or Sets. It is call'd a profitable Tree on Account of its quick Growth to a great Body, and for its hardy Nature, as prospering well on high, dry Grounds, and in most other Places, even in low Gravels.





CHAP. XVI.

*The Nature and Improvement of the
SALLOW.*

THIS is more of the amphibious Nature, in my Opinion, than any other of the aquatick Tribe; by Reason of its general Growth, either in low, watery Situations, or in high, loamy, gravelly Grounds; This is that which is said to buy the Horse before the Oak will the Saddle, and deserves a longer Detail of its many valuable Properties, than this Opportunity will give me Leave to enumerate: It is this that will, beyond all others, suffer itself to be cut to Profit in a Hedge at four or five Years End; so that where it is planted with White-thorn (as it best is) it may be made twice to once of that: Here then the Farmer has three Crops of Hedgewood in nine or twelve Years, and at the same Time enjoys the best of Fences, which is thus made, *viz.*

When the first Spit of Earth is thrown up, then plant on the same, about a Foot inwards towards the Field, the Sallow, or Salley Set, and bed its Roots well on all Sides; at the same Time cutting off the Head within four or six Inches of the Earth; then at four or eight Foot Distance plant another, and so on: Now on the outside extream Part of the Bank, White-thorn Sets must be planted with their Heads cut off in the same Manner, and after the same Length, in a direct single Row, as close as they can well be put; then throw up the rest of the Mould on the Roots of both Sallows and Thorns, whereby

whereby they will be all cover'd; and a Ditch at the same Time made.

Another Way.

THrow up the first Spit of Mould, in order to make a Ditch; on this plant a single Row of White-thorn Sets, close together, with their Heads cut off as before; then on the opposite Side lay in Truncheons or Sticks of Sallow, eighteen Inches, or two Foot Diameter long, and an Inch Diameter slopewise, cut at each End hollow like a Deer's Foot, the better to strike its Roots at Bottom, and to carry off the Wets to them from the Top; so that the Roots of the Thorns, and the lower End of the Sallow Pieces will be near together in the Ground, but their Tops will be two Foot asunder, by means of their lying in a contrary Slope; upon these throw the next Spit of Mould, then plant a second Row of Thorn Sets on the first, and Earth them all over: By this Method there will be two Rows of Thorns, and a single one of Sallow, and between them should be a Hollow or Furrow made for the Reception of the Rain. Or after one or two Rows of Thorns are thus set, Holes may be made in the opposite Side, that an Iron Crow had just opened, wherein may be put the Pieces of Sallow slopewise, by which the Bark will be prevented slipping up, as it is very apt to do, and die, when the Sticks or Cuttings are forced into the Ground of themselves; and when the Sallows are thus buried, there should only be left of them four or six Inches above the Earth, for the Shoots to come out at: This Hedge is best planted, and a three Foot Ditch made, in the Month of *October*, but may be also performed in any of the Winter Months, if the Weather is open; and is the best Sort I ever saw; for by thus setting the Sallows at a due Distance, and more forward into the Field

than

than the Thorns, the Workmen have room to cut them from off their several Stems without annoying the Thorns; so that they may be made twice in twelve Years.

But here I must observe, that there is an Objection made against the Practice of cutting the Sallows so often, because, say they, the Roots will after this often cutting, push out with more than ordinary Vigour, and the sooner wear out and die before their natural Time, according to the Proverb, *One may ride a free Horse to Death.* To which I answer, That this Objection is not regarded by many Farmers; for that the Sallows being thus cut, the Thorns much better enjoy the fresh Air, free from the Drip and Shade of this taller Sort, whereby they have a more frank Perspiration and Imbibition of the nourishing Dews and Air; and notwithstanding this double Operation, the Sallows will get up and overtake the Thorns at the End of twelve Years; besides, a Sallow of all others is the easiest and quickest propagated; insomuch, that if a Stake is drove into the Ground in any of the Winter Months, when it is not a Frost, it is six to one odds if it does not grow; so likewise, a small Stick or Cutting of a Foot or two in Length will do the same, provided the Bark is not drove up at its Bottom, and it lies rightly in a loose, proper Earth; for this, like all other Vegetables, best agrees with its prepared Mould, and that Soil as Nature has adapted to it; as an Oak on a Loam, the Beech and Walnut on that or a Chalk; the Cherry and Beech refuses the Vale; the Maple and Horn-bean affect a dry Ground; so the Sallow best loves a loamy Ground with a moist Bottom, though it will grow very well in loamy Gravels, and on any of the black, red, and white Clays; but the unlucky, dry Chalks and Sands it doth not agree with, as being contrary to its sappy Nature: Thus the Apprehension of wearing out the Sallow too soon is of no great Stress,

Stress, since they are so easily renewed ; and also because there is so seldom a Want of such a Renovation ; for I dare assert it for a Truth, by what I have heard and seen, that the Sallow Stem will endure fifty or more Years in a Hedge, if rightly managed, by cutting off its Shoots close, smooth, and sloping at each Operation ; otherwise it may be spoiled in half the Time ; for this Wood being of the aquatic Family, is of a soft, spongy Nature, and therefore, will easily imbibe and let in the Wets at its Stump, if it is left ragged or level, and then ensues Rottenness and Destruction ; nor should it be cut too high, for that will hinder much of the Stems branching, and decay it the sooner ; so that as the Duration of this most serviceable Wood is valued, due Care must be taken at such Times, to cut the Stem close, sloping, and smooth, that the Wets may not be able to make their Lodgments, and this every judicious Workman is apprised of, and therefore, this Hedge in particular should never be made by those that are not Masters of this useful Branch.

There is also another commodious Property belonging to such a Hedge, that is, here is generally Wood enough to supply all Deficiencies that may happen from the Huntsman and others, whereby considerable Sums are oftentimes paid for Damages made by Cattle's breaking into others Grounds ; or from the Weakness of those Fences that are too often so slenderly made for want of Wood, that it becomes a Temptation to them to break through ; and how important a strong Fence is, every Chiltern Farmer must be very sensible of, that values his Money and Repose.

Such a Hedge best grows where there are no manner of Trees planted in it ; for it is these that often reduce good Hedges into bad ones, by their unnatural Drips on the Underwood, whereby in Length of Time they do more Harm than the Value of their Timber

Timber amounts to; especially if they be Oaks, Ashes, or Walnuts; these are so prejudicial to their lower Neighbours, both by their Roots and Heads, as to spoil their Growth by saturating and envenoming their Boughs by their Shade and Drip, and exhausting the Goodness of the Ground about them. But I know that some are of Opinion, it is good Husbandry, when at the Time of planting a Hedge, young Beeches or Cherry Trees are set in for Standards, in order to cut down at twenty or thirty Years End, before their Heads are so enlarged as to damage the Hedge. I must confess that of such Sort of Evils, this is the least; because the Hedge and the Trees being young, have both their Gradations of Growth in Proportion, so that the Hedge will become strong, before the Trees acquire Head enough to spoil it by their Drip; and as to the Cherry Tree, it is a Sort that least of all others hurts its Underwood by its Drip or Growth, which is owing, it is said, to the Balsamick Nature of its Leaf and Branch; however, where none of these Trees are growing, there will be no Cause to Complain of their greater or lesser Prejudices; and where an entire Hedge of only White-thorn and Sallow is thus planted, there may justly be expected to grow one of the best of Fences, that will return the most Profit of any other.

There are several Sorts of Sallows, but it is the Land Sort that I have wrote on, that is very common with us, almost in every Hedge and Copse, and will grow on our dry Lands: Another of them there is that delights in wet spewy Grounds, and is also a fast Grower: The third has a Bark somewhat reddish, its Leaves lesser and of a darker Green, and its red Wood very tough and durable. These all of them run up very fast, and turn to a considerable Profit in their Poles, that serve for making our Hurdles, Rails, small Rafters, and many other Utensils; and where it happens that one of these Sallows gets a Bo-

dy of about a Foot Diameter, they are then red-hearted, as I have seen and used several, and will rend into Pales, &c. or if kept dry, is said to last as long as Oak, which occasioned the old Saying, *Be the Oak ne'er so stout, the Sollar red will wear it out.* But then it must be cut down before the large Worm takes it, that will sometimes eat into the Pith and other Parts of the Tree, so that a little Finger may be turned in their Holes. There are several Standard Trees now growing of it in a Wood near me, I believe some of them are thirty Foot high; and there was one lately cut down that grew among some tall Beeches, said to be sixty Foot high, and fourteen Inches Diameter, on a Loam that had a Clay Bottom, where they endure much longer than in the Gravels.

The Sollars Stems will sometimes produce ten or more Poles, eight or twelve Foot high, and are best cut down in Winter, for the Tap and Chair Turners Use as well as all others; but special Care must be taken that they are not cropt by any Cattle, for their soft, tender Buds are greatly beloved by them; if they are, their Poles are spoiled, and they will run into brouzy, spreading Heads.

In a Copse or Hedge the Sallows may be thickned, by giving a Pole a Chop at bottom, that it may easily bend to the Ground, where it must be kept forc'd down, by driving wooden Hooks in, and then cover it all over with Mould in the Nature of a Layer, leaving here and there an open Place for the Shoots to come out at as is mentioned in the Chapter of the Elm.

The Sallow has a Property belonging to it, different from most others, and that is, that the Gollin or Seed of this Wood is of so light a Body, that it is often carried by the Winds, and conveyed to some Distance, where in the Spring Time it falls in many Places, and produces young Sollars. An Example of which is in an eleven Acres Field; about a quarter
of

Improvement of the SALLOW. 99

of a Mile from my House, laid down for an Oaken Wood about nine Years ago, by being sown by Acorns; here there are great Numbers of Sallows, spontaneously come up from these Gollins, and some of them are now four Foot high.

In a Copse, the Sallow is inferior to none, in its profitable useful Productions, where the Soil is a Clay or a loamy Earth; here it best grows amongst the Oaks, sweet Chestnut, Cherry Tree, Hazel, and Hornbean, in Rows, at six or ten Foot asunder; I mean, where the first three are to be left as Standards, at proper Distances, because these Trees have Tap-roots, and seek great Part of their Food deep in the Ground; and the Hazel and Hornbean takes up but a small Circumference like the Sallow. Or if a Copse was to be new made on such Land, I think none can return a greater Profit, than if it was intirely furnished with this Sort of Wood, of which my Copse and Hedges very much abound.

There is a Sort of Improvement to be made by the Sallow Stake of four Foot long, if rightly managed; and for this Purpose I shall put down the Notions of several of our Countrymen. One says, that the best Way is to cut a Sallow Stake at Bottom, sloping it four or five Inches long, and leave the Rind carefully on the other Side; this must be cut across, and put a little Stone into the Slit and plant it. Another, that their Ends be soaked in Mudgel Ditch-water two or three Days, then cut them aslope at Bottom, and prepare a Hole, by driving in another Stick first, to keep their Bark from slipping up. Another says, that these Stakes should be cut just as the Sap begins to be in a Motion, and planted directly as before.

In *December* last, I found a few Sallow Stems amongst Hazels, and as the Hedge was making, the Workmen gave a Chop about half through the outer Bough at Bottom, and then bent it down close to the

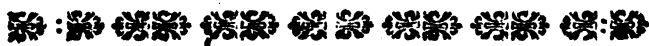
Improvement of the A P S.

Useful, profitable Tree, where the Soil is agreeable to their Natures, and run to a great Height and in a few Years, but refuse sharp Gravels, Chalk and Sands. They are propagated in October or January by Sets; that must not have their Heads cut off, only their Side-shoots kept pinch'd off, that they may the sooner get out of Cattle's Way. There are many, in Boards, Somers, Joynts, Chalk frames, Kiln-laths for the Malsters, and Pales for Parks: Some for the Sake of its Whiteness and Lightness, make Trenchers of this Wood but it is apt to taint, and give an ill Scent to the Meat.

In our Church-yard there are now growing Aps, and six White-wood Trees that were set straight, single Arms, put into the Earth upright and staked well, within six Foot of a Hedge, in a Row at twenty Foot Distance, about thirty five Years ago; these measure about six Foot in their Bodies, which is but narrow to some of the same Sort planted at the same Time, on the same Soil, before our Parson's House; but this is accounted for, where it's known that the former are under large spreading Heads, that commence from within seven Foot of their Roots, so that the Sap was chiefly employed in making Branches, when the latter were more Body than Head; because they were kept trimmed up in their Side-shoots to a great Height, and thereby got near as thick again as the others: Now neither these, nor any of the Aquatics are good Wood for Fire Use, by Reason of their great Spurriness; and therefore, it's quite wrong to let the Trees grow more into Head than Body, unless there be a Demand for them by Way of Shelter for Cattle, or to break off Winds; for the Body is much more valuable to the Carpenter, than the Head is to burn.

The Aps and Whitewood are so much alike in their Seeds, or Gollins, in their trembling Silver leave, and the Colour of their Wood, that some time

times they are not easily distinguished; infomuch, that some think the White-wood to be only the Female, and the Aps the Male. They are both very apt to run red-hearted, hollow, and decay at twelve or fourteen Inches Diameter, especially in flat wet Grounds, if they are not down in Time; and will, if they are suffered to stand a great while, grow into a meer Shell. But in high, dry Ground, the Aps often grows sound, as one did by me, of two Foot Diameter in its Body, fell'd from off the gravelly Top of a Hill which had a chalky Bottom. ----- It makes good Bedsteads that will last hundreds of Years, if kept dry, but if wet and dry, as in Pales, &c. it rots in fix. It is somewhat of the Deal Kind, but rather a firmer and whiter Wood; and therefore superior to the Beech for several Uses, because that will rot even in a dry Chamber in a few Years.



C H A P. XVIII.

The Nature and Improvement of the WHITE-WOOD.

THIS Wood proves itself to be of the Species of those aquatic Trees, the Poplar, Aps, and Abel, by affecting and quick growing in the moist Soils and low Grounds, where the Sallow, Willow, and others of the watry Tribe chiefly delight in. But this Tree seems to have escaped the Knowledge of all, or most Writers, which certainly is an Aquatic, and grows with great Expedition in Ground agreeable to its Nature, as is that of *Cbedington Farm*, and many other Places in *Bucks*, which I found out, and help'd a Gentleman to the Purchase of. This is a Manor,

Manor, and one of the best large Farms in the Kingdom, for Goodness of Meadow, and Arable Land; and altho' in the Vale of *Ailesbury*, two Miles from *Ivinghoe*, there is a very high Hill belonging to it, containing many Acres of plowed Ground, that is said never was dress'd in the Memory of Man, and yet produces the best of all Sorts of Grain: On the level Ground of this Farm, amongst White-thorn and Sollar, grows several of these White-wood Trees, that, like the Poplar, hurts not its Underwood as many others do. And also about *Eton*, under *Dunstable Downs*, where in both Places the Earth is of a black, fat, clayey Nature; here this runs up to a great Height and Bulk, one whereof had fifty Foot of Wood, in only ten Foot Length of the Ground End of its Body; and in the Head and other Parts, three hundred Faggots, and several Stacks of Fire-wood.

It is an ornamental Tree, when planted in Hedges, or in Rows for Walks, and affords pleasant Views to the Beholders from its Silver-colour'd Leaves, and whitish, tall, strait Body and shady Head: Nor is this Tree confin'd altogether in low Grounds, but will also thrive and prosper beyond many on high Hills of Clay Bottoms, as several do near me, or in strong loamy Lands; but not in Chalks, sharp Gravels, or Sands, and is very near the Nature and Make of the Aps.

This Tree is propagated by its Truncheon, Layer, or Set: The first, by being put slopewise into the Ground, the Beginning of *February*; the last, by bedding its Roots in good fresh Mould, and carefully covering then therein, about the same Time, or in *October*; keeping the Head from its first planting, trimm'd annually up, that it may the sooner be out of Harm's Way; but the Top-shoot must never be cut off.

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I have seen several of these grow in one and the same Hedge where Elms did, but the White-wood got the Start by a vast Difference in Height and Bulk, and yet threw up great Numbers of young Shoots from their spreading Roots, that even the Cows, Horses and Sheep did not keep down; but I suppose this was by Reason of the unpleasant Taste of the Shoot: in the Vale, this Tree will grow from the very Chips, as they prove by Shoots that succeed in the Place where the Faggots were made; but this Sort of Multiplication must not be expected, but in few Parts. of the Chiltern, where the Ground generally is not so rich by far, as is that in the Vale; nor so loose and hollow as to receive the Chip's Impression. The low Country-men sometimes call it *Dutch Arbel*, but the common Name among them is White-wood, from this Colour, that the Bark, Leaves, and Body retains, beyond all others that grow in this Nation; and therefore is preferr'd by the Vale-men for making beautiful Cupboards, Dressers, Flooring-boards, Somers, Rafters, Joists, and many more Uses.

The Set is frequently put into new planted, or old made Hedges at every Pole Distance, for the Sake of its quick Growth in a fertile, soft Ground, where it said to outrun the Elm by six Degrees; as may be seen also at *Cbedington*, on Mr. *Hudson's* Farm, who planted as many in his Life-time as are now worth one thousand Pounds, and he has not been dead above three Years: These, like the Aps, Poplar, &c. have a Seed or Gollin that hangs on the Tree, from the Beginning of *March* to the latter End of *April*; but the Set is chiefly made use of in these Parts.

And if any Gentleman has a Mind to propagate this Tree, they may be furnished by me, with these Sets, that I can so order from *August* to *April*, as that they will grow if sent to any Part of *England* by the Carrier,

Improvement of the WHITE-WOOD. 105

Carrier; and also with Oak, Beech, Ash, Elm, Sollars, Hornbean, Thorn, or Holly-sets; or with Acorns, Mast, Keys of Ash, or Maple, Seeds of Hornbean, and several other Sorts, provided I have timely Notice given me.

But here I would be understood, that the White-woods out-running the Elm so very fast on this wet-ish, flat Soil, is no general Rule; for here they both grow in a Hedge, where the Elms have not that Power to exert themselves, as the White-wood has; by Reason here it enjoys its proper Food in a natural Manner from the waterish Earth about it, as being a true Aquatic, which the Elm is not; and this I prove thus: on a high Ground, about a Foot thick of Mould, and under that a red Clay in the Chiltern, grow both these Sorts not far off each other; where they are planted free from any other Invader of their Roots at proper Distances: Now here the Elm keeps Pace with it, as being in its more proper Soil and Situation than the White-wood.

Some lop the White-wood Tree in *November, December, or January*, for Firing, and at the same Time furnish themselves with Trunchions seven or eight Foot long, and three or four Inches Diameter, to set for Trees, by putting their Ends a Foot or two into the Earth which is the surest Way of propagating this Tree throughout the Vale of *Aislebury*, for raising a speedy Profit by the same, and therefore reject the rooted Set.





C H A P. XIX.

The Nature and Improvement of the
POPLAR and ABEL.

THESE Aquatics are propagated by Suckers, Cuttings or Truncheons ; by Suckers, that may be bedded and planted in fine hollow Mould, in Copses for Trees, in Rows ten Foot wide, and at twenty Foot Distance, amongst Oaks, Ashes, Chefnut, and Cherry-trees, and Underwood of Hazels, Sallow, Hornbean, &c. where the Soil is Clay or Loam, proper for its Growth ; and here it will answer very well, as one of those Sort that seeks its Nourishment towards the top Earth, and be a natural Neighbour to the Oak, Wallnut, Chefnut, and Cherry-tree ; by drawing a different Juice out of those many Sorts that the Earth abounds with, whereby less Damage is done to the next Tree, than if they were all of a Sort. By Truncheons, or Cuttings that may be buried in Banks, in watry, marshy Places, or by Sides of Ponds, or Rivers, where they must be put in at four, eight, or more Foot Distance, two or three Foot into the Ground, and about half a one out of it slopewise ; but if Success is expected this way, their Bark must ever be slipped up, at their putting into the Earth : This is so much like the Aps, ~~that there~~ is not much Difference to be perceived ; and these like them grow in our Woods, where the Ground has a moist Bottom ; but they grow better in the watry Grounds, for there they have more Plenty of their natural Food, than on our high, drier Lands, and will arrive to a useful Bigness .

Improvement of the POPLAR. 107

Bigness in twenty-five or thirty Years, that will serve their Purposes as the Aps will ; for the Aps and Abel are both a Sort of Poplar, that grow equally fast in tall, large Trees, and are alike increased, and will suffer any Wood to thrive under them, without that Damage which most others will produce, because it does not spread (if it is trimm'd up) like the Oak or Walnut ; the Leaves also are small, and commonly under such a tremulous Motion by the Wind, that they have not Power to retain the Wets that are often blown off from their high Heads, before it falls on his under Neighbour. For these Reasons, it is Pity that more of these Trees are not planted on our Loams, as well as in wetter Places ; because they bring on a sudden verdant Sight and Shelter about Houses and Gardens, as well as in wet Meadows and Marshes, to a very great and expeditious Profit.

And although it is a Wood less serviceable to the Fire than some is, because of its spungy, watry Parts, that abound with less Salt and Sulphur than many others, yet that Defect is fully supply'd in the many Uses that this Tree is converted to, especially to the Chair-Turner, who willingly gives five Pence *per* solid Foot, if it is found.





CHAP. XX.

The Nature and Improvement of the
A L D E R.

Between *Hemel, Hempstead, and Waterford*, in the low watry Meadows, and by the River that runs through them, grows the most Alder that ever I saw, in fine long Hedges ; where their large high Poles shew themselves in a beautiful Prospect to the passant Travellers, and turns to a great Account amongst the *Barkhamstead and Cheshunt* Turners of hollow Ware, who in that Commodity make more Consumption of this Wood and Beech, than any other great Towns in *Great Britain*, as is allowed by good Judges ; for with this Wood they make Dishes, Bowls, and many other serviceable Goods, that are lighter and softer than the Beech or Elm, and will bear turning thinner than most others ; so that to pleasure Curiosity, a Dish of it has been turned Inside-out, like a Hat ; and of this, many of the Frames of the matted and other Cairns in *London* are made ; as are Pattens, Clogs, and Heels of Shoes ; Gates, Hurdles, and small Rafters.

Its Wood is best in watry Foundations to build on, where it is said to harden like a Stone, and the very small heady Part will serve to lay in Trenches, that drain Land to keep it hollow for the Water to pass ; but instead of this, I used some large Flints, that I put together Archways, that answered compleatly to my Purpose, by holding almost as good now as at first, though it has been done these
twelve

twelve Years, and the Carts are often drawn over it. Gun-powder is in part made of its Coal, and the Bark formerly was used by the Dyer, which obliged the Owners to fell it in *April*, for then it would run best ; but now it is not so much used this Way, because they have latterly found out something better, that supplies its black Dye.

The Worm is very apt to get between the Bark of this Wood after it is fell'd, and then it is greatly damaged for the Turners Use ; but to prevent it, the Owner takes Care to bark it in Time, for then it will bear keeping a long while, if it is not wet and dry, which rots it presently.

There is a peculiar beneficial Property belonging to this Plant, for no Beast will crop it, be it young or old, which saves the great Charge and Trouble of fencing it after making. Their Propagation is the same as the Poplar, and where a Place is too wet for that, the Alder will flourish in high, bulky Trees, Pollards, or Poles, in Hedges ; in short, there is none of the aquatic Tribe will raise more Money and sooner than the Alder, in wet Meadow Hedges, and in boggy moorish Ground, nor make stronger, quicker Fences, than this excellent Plant will.

This Aquatic will thrive but poorly when raised from Truncheons, nor much better from the wild Set or Sucker that this produces but few of. But there is a Way to do this much more to the Purpose, and that is thus : First prepare a Bed of well manured fine Mould ; then put the full ripe Seed at a due Distance from the Fire, or in the Sun, and it will cause them to open like the Fir Pine-Apple ; then sow the Seeds in the same, and you'll have abundance of young Plants, that on setting out will be sure to grow if rightly managed : At *Midsummer* cut away the small side Shoots of this Tree, and it will prevent their second Growth ; but if they
are

are large, you must not do it, because it will then make the Sap run out too much, and damage the Trees. This is of great Consequence; for by so doing, the large Side Arms are prevented in their Growth, that often causes Knobs and Wens that lessen the Value of their Wood.



C H A P. XXI.

The Nature and Improvement of the WITHY and WILLOW.

THIS Withy often arrives to a large Stature, especially the red Sort, that delights to be planted in high Banks, as Mr. *Workidge* says, where they will strike their Roots deep into the Ground, by Ditch, Pond, or River-side; these, like the Willow, will also grow in clayey or loamy Grounds, either in Standards, Pollards, or in Hedges, and are in great Numbers about *Baldock*; where many of them are sold to the Turners, for working out Dishes and other hollow Ware; some of them measuring two Foot Diameter, will make Bowls as big as Bushels.

They are of a very quick Growth, and in few Years obtain a red Heart, to their white Pith or sappy Part, that will sell for six or eight Pence the solid Foot, and are propagated as the Sallow: The Willow especially is very easily multiplied; by sticking a Trunccheon, or straight Piece upright into the wet or moist Ground by Water-sides, from two to seven Foot long; sloping first the Ground like a Deer's Foot, and either the black, white, or yellowish Sort will make a speedy Growth; but the Pieces

Improvement of the OZIER. 111

Pieces should be soaked in Water four Days, or a Week before they are set in *February*, from eight to twenty Foot Distance, keeping Cattle from cropping their Leaves; and also that their Side-Shoots be kept trimm'd up to the desired Length, as well as their Suckers pull'd away in due Time.

If they are not design'd for a Hedge, which is seldom done, the Pollard is of great Service in returning a Top at three or four Years End, that may be cut just before Winter, or in the Spring; and is of so great Use, that I have known it the only Wood they have in some Parts of *Rutland*, in their open Fields; but it is seldom of longer Duration than twenty or thirty Years, by Reason the Wets are very apt to get in and rot its soft, spungy Body: Also in the Vale, where they have not the Hazel growing, the Willow is planted to supply it: for with their tough, long Shoots, they make their Withs for binding Faggots, and fastening down the Straw in thatching of Barns and Houses; this makes Hurdles, by their largest Shoots, that will endure much longer than the Sallow ones; besides many Things in the Basket-makers Way.



C H A P. XXII.

The Nature and Improvement of OZIER S.

TH E Castle Gardener at *Barkhamstead*, suffer'd a great Loss in some of his Ground which he rented, that was constantly wettish, till he was advised to plant it with Oziers, and then it turned to a great Account. There are almost twenty Sorts of them, that may be increased by Sets of four or five Foot

Foot high, planted at three Foot apart, in Ground well trenched before-hand, that is got hollow and fine; then at three or four Years End, in *February*, cut them to two or three Foot of the Earth, that they may get spreading Heads, and be fit for Use in *September* following.

They serve Abundance of Uses; particularly Fisher-men, Gardeners, Basket-makers, and many others.



CHAP. XXIII.

The Nature and Improvement of the White ELDER.

THIS, I believe, I may venture to say, is a new Chapter in Print, as well as the Black Cherry, Witch-Elm, and White-wood, as being not wrote of in this distinct and ample Manner, by any Author before myself, as I know of; though, in my humble Opinion, they deserve the Preference to several others that have been more enlarged on, whose Uses and Value are far short of these excellent Trees: The first of the White Elder was introduced into these Parts, by the late curious *Simon Hartcourt, Esq;* of *Penly*, from whom I had many Cuttings, that now grow in my Garden-hedge to a great Height, and to an East and West Aspect, by which it enjoys the Rising and Setting of the Sun, that is more than ordinary necessary to the due Maturation of this Berry; because, if they are not full ripe when gather'd, their Liquor will be spoiled; as I understand, a Hoghead or two of their Wine was, by injudicious Hands; who seeing the Berries
ripe

Improvement of the White ELDER 113

ripe on one Side, did not examine whether the other was so too; which caused their being gather'd too soon, and their Wine eager in a little Time: Whereas, if this Berry is gather'd in a dry Time, and full ripe, it has made a Wine, that has deceived a Gentleman I was in Company with, of great Judgment in many other Liquors; who took it for *French Frontigniac*, which it comes very near to, both in Taste and Colour: But this cannot be done without a particular Ingredient that I had an Account of from Mrs. *Carbury*, the late Minister's Widow of *Ivinghoe*, who was the most famous for this Sort of OEconomy of any in this Country, and which, with several different Receipts, among other serviceable Secrets, never yet printed, I intend, God willing, to publish as soon as I well can, if I am encouraged thereto by such as are Well-wishers to the Good of their Country.

This Plant then may be propagated very easily in Hedges, or as Standard Trees: First by its Seed, after the Berries are squeezed; these may be thrown over a prepared Garden Bed, and cover'd with Mould half an Inch thick, and they'll come up the next Spring; after which they may be transplanted, till they arrive at a Bigness fit to plant out for good; or by cutting off a Foot or two long, put slopewise into a good hollow Ground or Bank, in *October* or *February*, which will come up the very next Summer, and grow a Foot or two in Length; but between each, a White-thorn Set should be put with its Head cut off: Then it will become a strong Fence, with the Help of a Ditch, for keeping out Cattle, and hold good many Years before the Elder kills it: This must be fenced in very securely from the Crop of Beasts, till it be got out of their Way, which it will do in about three Years Time, and bear plentifully of white Berries, that are generally bigger than the red, and superior to them in Wine,

that now begins to be much made of them ; but whether wholesome I cannot say ; however, all Authors that have wrote on the Virtue of Elder agrees, that this Tree is of a general Good to Mankind, in the Liquor of its Berries, in its Rinds, and in its Leaves ; infomuch, that I have heard it said, if any one Tree deserves the Regard of Men, this does, for its many galenical, salubrious Uses ; and particularly (if Report is true) for its being a very good Drink in an Asthma, &c.

And as the red Sort is now become so common, as to be sold in its Juice at the *London* Markets, I do not doubt but this, in a little Time, will also become more universal, and be entertain'd as a most delicate, wholesome, pleasant Liquor, at the greatest Tables, even to supplant, in some Measure, the excessive Use of Tartarous Wines.

There is a potent Spirit made of these Berries, or the Red, by the Alembic, that will burn in a Lamp, if managed rightly in the Distillation ; and also will serve in another excellent Use, which I intend hereafter to publish. And if any Gentleman or others are desirous to get Plantations of this white Sort, they may be furnish'd by me, to most Parts, by the Opportunity of the *London* Waggon, having already sent some in this Manner into *Somersetshire*.



C H A P. XXIV.

The Nature and Improvement of the PEAR TREE.

THIS Tree, on a Loam or Clay, is very long lived, even to two hundred Years or more, having so large a Pith, as to admit of the Loss of
its

Improvement of the PEAR TREE. 115

its Bark for four or five Inches quite round its Body, as by Tryal has been proved on a Wall-tree to check its Sap, and make it bear the better. It generally carries three Years bearing Wood on it, and therefore beating it would make it barren several Years. It will thrive in poor gravelly Ground, when an Apple-tree will pine away; because its Roots are so strong as to penetrate a soft Rock, and is so fruitful, that some has borne their Weight almost in Winey Liquor, even to four Hogsheds from one Tree, and one that I have heard of yielded seven. The best Perry is made from the wild choaky Pear, and requires a few Years to meliorate its Juice in the Cask to make it drinkable, and then it is an excellent, pleasant, healthful Sort. Its Wood is worth nine Pence a Foot for the Hollow-ware Turner, or the Cabinet Maker, if cut down at a right Age. It may be propagated for a Wood, Hedge, or Standard Trees. If for a Wood, being of the Tree Kind, it will run very fast into Poles or Underwood. The Seeds may be sown in *October*, on Ground ploughed two or three Times before, and well manured; while it is rough sow the Seeds, and harrow once in a Place both Ways. Or, you may sow them with your Barley in *March*, which will rather secure their young Spires than damage them, and the Scythe will easily pass over their low Heads.

F I N I S.





The SECOND PART of the
TIMBER-TREE
IMPROVED:

CONTAINING,

- I. The Nature and Uses of Foreign and *British* TIMBER-TREES.
- II. Of OAK; a profitable Account of it from Tradesmen, with several Cases relating to this Timber. To know if Trees are sound or unsound, as they stand, or after Felling. Why Posts, that are burnt at one End to last long, last the less Time for it. How to make Timber more durable, than in the common Way; with Twenty other Improvements relating to the OAK.
- III. Of ASH; how to make an impregnable Live-fence with this Sort of Tree, for Parks and Fields, to immense Profit.
- IV. Of BEECH; how to make it last near as long as Heart of OAK. How BEECH was so managed, as to be sold to a *London* Chair-maker for WALNUT-TREE. A remarkable Example of many great BEECHES being rotted as they stood, by the Ignorance of their Owner; with Fifteen other Particulars relating to this Tree.
- V. Ten Sorts of Improvements of the ELM.
- VI. Eight Improvements of the WALNUT-TREE.
- VII. Of the MAPLE, BAY TREE, SYCAMORE, BIRCH, LAUREL, LIGNUM-VITÆ TREE, WHIP-BEAM, HOLLY, WITCH-ELM, HORN-BEECH, YEW, and BOX-TREE, PINE or FIR, CYPRESS-TREE, BLACK CHERRY, CEDAR, SWEET and HORSE CHESNUT, JUNIPER, HASEL and FILL-BEARD, PEAR-TREE, APPLE and CRAB, BARBERRY-TREE, ALMOND-TREE, PLUMB-TREE, QUINCE, MULBERRY, WHITE and RED ELDER-TREE, BLACK and WHITE-THORN, ASP, POPLAR, ALDER, WILLOW, WHITE-WOOD, SALLOW, WITHTY and OSIER, MEDLAR and SERVICE-TREE, IVY, FURZ and WHINS, &c.

By WILLIAM ELLIS,
Of Little Gaddesden, near Hempsstead, in Hertfordshire.

L O N D O N:

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THE
TIMBER-TREE
IMPROVED, &c.

CHAP. I.

Of the OAK.

To know if an Oak is found or damaged.



HIS Article, in particular, all Authors, to the best of my Knowledge, have passed over: If they have ever touched upon it, they have made but little Observation, though it is one of the most necessary Sorts in the Timber Business: For it is certain, there is sometimes a greater Difference between a found, and what we call a shaken, or unsound Tree, than there is between Six-pence and Eighteen-pence: That is, one of Eighteen-pence a Foot square, which is truly clear and found, free from great and many Knots, is better worth that Money, than an unsound shaken Tree is worth Six-pence a Foot. Now to know a shaken Tree, you must have an Eye on the Outside of its Body, and see if there be not a Rib, long Rising,

B

Jetting

Jetting-out, or Crack in some Part of it; if there is, you may depend on it, that such Tree is damaged or shaken: But to be more particular. There is a certain great Wood computed to be several Miles round, whose Bottom is a red Clay, below a shallow Surface of hazel Mould. In this Wood grows a prodigious Number of Oak-Trees, which are all, or most of them, shaken, little, or more, except a few that grow on a gravelly small Spot of it. For a Proof of which, an ingenious Workman at Lath-Rending declares, as he has for many Years wrought on the Oak-wood that grew in this Place, he never met with any, but what was shaken, except, as I said, those which grew on the dry Ground.

How Oaks become thus damaged. The Reason of this is very obvious, if we consider, that a red Clay holds Water like a Dish, which gives the Roots of Oaks a considerable Opportunity of furnishing themselves with Abundance of Sap, for in such Soil, and by the close Standing of the Trees, the Ground is never dry; and for Want of a free Air and Room for the Buds, Leaves, and Shoots, to sweat, or perspire out, the superfluous Sap, or Moisture, it is obliged to force its Way out by Cracks or Rends that it makes in the Body of the Tree. Now it is such forcible Bursting, that shakes or splinters the Inside of the Tree, to evacuate or discharge this Super-abundance of Sap; and, when it has sufficiently expended it, it forms an Excrescence, or long Rib on the Part, which is Nature's Healing or Skinning the Wound over, who is often its own and best Doctor; yet not so close, but that the extra Sap has commonly Room for a free Passage through such Crack or Rend, and undoubtedly serves for some Time, as an Issue or Fontenal for making off such watery Humour: Hence it is, that such defective Trees
may

may be discovered; and it is this that shews the great Benefit a Tree enjoys, when it grows in a dry Soil, and has full Room to receive the Air, Dews, and Rains, at its Roots, Bark, Leaves, and Fruit, and return the Overplus through the innumerable Ducts and Pores of them; but most of all through the Leaves, which are here much impeded by the close Situation of the Trees; and then it is that the top Part of the Tree is obliged to carry most or all of the Leaves, for, by their close Standing, the Drip and Shade of the upper Arms perish the lower ones, which causes the Tree to lodge so much Sap, that for Want of Arms, Shoots, Leaves, and Fruit, to discharge it, it makes an Eruption to find a Vent. Thus a Sap or Water-Breach is made, and, by the Veins or Vessels of the Tree, the Sap or Moisture issues to, and here runs off: So that such Tree not only suffers by being thus rended and splinter'd, but its Wood, for a considerable Way about the Part, is shattered and loosened, to the great Damage of the Owner, if it is discover'd by the Buyer, otherways, the Buyer lays out his Money for what he has not, that is, sound Timber. For as a Carpenter said he had as live buy some hollow Trees, as some shaken Trees, because, if the hollow Trees are but a little decayed in the Middle, and the rest of their Bodies sound, they are more valuable than the other, when much shaken or rended.

How Trees may be shaken or damaged by Frosts.

A Tree may not only be shaken by the Superabundance of its Sap in the Summer Time, but also in Winter. This Disaster befel innumerable oaken Trees in the long severe Frosts that happened in 1739, by which they became rived, shaken, or split: For as Ice has a more hollow Body than Water, by Times, and Frosts have Power over all fresh Water and Moisture they

can come at; the Sap of Trees, though thickened and congealed in them, becomes swell'd, and thereby rends and bursts the Body of them in one or more Places. Now the Oak, of all other Trees that grow in *England*, is most subject to this Calamity, because it is more porous than most others. I have seen a Cooper put some of his Spittle on one End of a long Stave, and blow at the other, to make a Blother, and it would do it like a Cane, through the Pores, or Veins, contained in the Wood; for notwithstanding it is the strongest and most durable Wood of all our *English* Sorts for Building, yet is Beech, Ash, and Elm, and several of a closer Texture of Parts than the Oak, which causes it to be more subject to this Piece of Ruin than they, and especially when there is a great deal of Sap in a juvenile Oak, which on this Account makes it liable to be so crack'd and shaken, that a nice Eye, sometimes, cannot perceive it, while the Oak is standing, because there may be several rended Places that are almost imperceptible, even after the Tree is fell, for the Wound in Time closes and skins over so well, as to deceive the Spectator.

A Proof of a good and bad Tree. This Redundancy of Sap, which causes the Shaking or Rending of the Oak, is certainly chiefly occasion'd from the moist or wet Bottom whereon the Tree grows, for here the Roots imbibe so much aqueous Nourishment, as fills the Veins or Pores of the Tree till it bursts, as I said, into Cracks, to evacuate and let it out, for the Sap remains in all Parts of the Oak, even in Winter, and is not received into its Roots as many ignorantly imagine: It's only there congealed, and, from a rarefied thin Body in hot Weather, changed into a thicker in cold; yet not so hard and densified, but that the Cold freezes it into a thicker, harder, and larger Body still, of such

such an icy Nature, as to do the Mischief I am writing of. A Carpenter bought two Oaks, as they stood, one for sixteen Pounds, the other for ten Shillings, which grew about four Poles asunder. The little one he fell'd first, and found it shaken almost all over, which struck such a Damp on his Spirits as made him offer forty Shillings to be rid of his Bargain; but that would not do: However, some Time after, he fell'd the great one, and it proved as sound as any he ever had. The Bark of these two Trees he sold to a Tanner for fifty Shillings, and he at the Charge of taking it off. Now why the young Oak became shaken, and not the other, may be, because the bigger might stand on a more drier Soil than the lesser one. Nothing is more deceitful than standing Trees, so various are their Infirmities. A Timber-Tree is a Merchant-Adventurer, you shall never know what he is worth, till he is dead.

Of the great Damage by lopping Oaks, and the Way to prevent it. It is true, that the best Way to prevent young Shoots from growing out of any Part of an Oak's Body, that the Owner would not, is to prune them about *Midsummer*, which will give such a Check to the Sap, as to hinder their Return for many Years after. But if this is done in Winter, they will soon grow again about the same Place, as I have often proved. Yet this Practice would be very ill performed at any Time of the Year, when Arms are cut off of any Bigness, because then the leading Vessels to that Part are got so large, as to give Room for Abundance of Sap to flow to the Place, and there issue out, to the very great Damage of such Tree. For as the Sap to a Tree, is as Blood to an Animal, the other Parts of the Tree must suffer a Want of Sap, when too much is discharged by such large Orifices. And if you was to stop the Part with any oleaginous

oleaginous or plaſtick Matter, the Miſfortune would be increaſed; becauſe, for want of Vent, the Sap muſt flow about the inſide Part of the Wound, and there rot the Wood. This is a Sort of Damage that has eſcaped the Perception of many nice Inſpectors: As I ſhall by and by make appear, by Examples, in the Chapters of the *Elm* and *Beech*, which I doubt not, will be a ſufficient Warning to all my Readers concerned in buying or ſelling of Timber; the latter to prevent the Miſfortune, and the former to examine the Tree well before buying, to avoid Impoſition, for there are Bites in moſt Professions; but fore-warned, fore-armed: However, in Caſe there ſhould be a Neceſſity to lop off the large Arms of Oaks, cut them off within a Foot of their Body, rather more than leſs; for then, and if this Operation is done in Winter, it will cauſe ſome little Twigs to ſhoot out about the Part, and expend moſt of all the flowing Sap in nourishing their Growth, and thus ſave that irreparable Damage, ſuch injudicious Management ſubjects a Tree to.

A Cooper's Account of Oak. A Cooper, that had juſt rended a green Oak into Staves, had a large Barrel-churn beſpoke in Haſte, and, wanting Wood to make it with that was ſeaſoned by Age, was adviſed by a Lath-render, to boil the green Staves in his Hoop-Copper, which is eight Feet long, and two broad. In this he boiled his Staves one Hour, and they tinctured the Water almoſt black as Ink; and, after he had gradually dried them two or three Weeks, he worked them into a Churn, and ſaid they never ſwelled nor bulged afterwards, but lay as ſtill as any he ever worked; for, when Staves are boiled, they will become very pliant, and twiſt almoſt like ſome Leather. This brings to my Memory the Sight I had once at *Chatham-Dock*, in 1738, of their making thick-oaken

paken Planks pliant, by steaming them several Hours in a confined Place, for their more commodious using of them about the Sides of Ships. But in my humble Opinion, if they boiled them a little while, it would bring them to their Bow much sooner, and with less Trouble, than the common tedious Way they now follow: But yet, with Submission to their better Skill, I must own they may be in the Right, on account of keeping in some Part of the Sap this Way, and yet make the Plank pliant too; for which Reason, I suppose, this Method was invented. But this is not all, for by Capt. *Cumberland's* late Way (who had three hundred a Year allowed him for Life, for his Invention) the Sand, that the Planks were heated in to sweat and make them Planks, stuck so close to the Wood, that, when cold, spoiled many of the Carpenters Tools in working them, which this Way does not. If you boil Oaken Planks, Pails, or Hoops, in three several Waters, the first will be entirely black, the next less, and the third almost clear, which shews all the Sap to be out. Another Cooper, at *Chebbam* in *Bucks*, complaining he had nothing but green *English* Oaken Staves to work on, that hindered his getting his Bread at present; a wiser Man than himself hearing it, bid him throw his Staves into the River. The Cooper answered, they would be carried away by the Stream, or stole: Oh, says the other, I will tell you a Way to prevent that, Take a large Cask, with only one of its Heads in, and fill it with such Staves; then pour in as much Water as the Cask will hold: At two Days End, draw off the Water, and put in fresh to stand two Days longer; then, as soon as the Staves are taken out, put them in the Air to dry, and make use of them, which he did, and they answered as well as any that had been dried a Year together. But, for a Wager, I

have heard a Cooper say, he would, by boiling green Staves, Half an Hour at a Time in only two Waters, work them at a Fortnight's End : In Winter by drying them after Bread in an Oven, and in Summer by the Sun, and should answer as well as the oldest Wood.

A Wheeler's Account of Oak. He took out some old Spokes that had been in a Wheel near forty Years, and though most of them had a Mixture of Sap and Heart, yet the Sap seemed harder than the Heart-Part, and so good, that he made use of them again as Standards, to support the Sides of a new Cart. Now it is very likely, that these sappy Spokes had a regular Drying and Age before they were used ; or were first soaked, to get out the Sap ; which, in my humble Opinion, is a surer Way than that of stripping a Standard Oak of its Bark, and afterwards to let it remain erect for two Years in the Ground, in order to harden its sappy Part, and make it last as long as the Heart. It is the Opinion of some, that those Oaks, that grow close in Woods, have a more softer Wood, than those Trees that grow alone, because such a one is exposed to all Winds. Two Oaks that grew almost close together, one was fit for Building, and the other for Shop Use ; because, that Oak which grew on the North Side was very hard, when the other which grew on the South Side was very tender.

A Lath-render's Account of oaken Sap Laths. If Oaken Sap Laths are made Use of before they are bound in Bundles, and set out in the Weather for about a Year, they will rot presently ; but, if served so, they will last more than a hundred Years, as has been experienced. However, if you are in Want, and can't get such seasoned Laths, then if you will soak such sappy ones an Hour or two in cold Water, and dry them regularly, the Sap will

will be got out, else in three or four Years they will begin to rot a Cieling, by the Worms feeding on, and eating them up. For Proof of what I write, a Parcel of oaken Sap Laths was kept in Bundles in an upright Posture in a damp Ground-room, where the Air and Rain could not come at them for a whole Year, and, at the Year's End, the Worms had bred and eaten a great many of them into Powder: Which should be a Warning to all concerned in Building, to be careful in the Choice of their Laths, lest they be at the Expence of making a new Cieling in less than seven Years.

The Damage of using green Oak. This is often done in many Shapes with the Sap in the Wood, though very prejudicial to the Buyer's Interest, whether it be in Boards or thick Timber; but most of all, when such green Wood is painted over, a Piece of ill Husbandry, that very many are ignorant of! and therefore are imposed on oftentimes by a crafty knavish Carpenter, Joiner, or other Tradesmen, who make this Maxim their standard Rule, That the Strength of the Work is the Decay of the Trade. On this Account, I advise my Reader to remember, that if green Timber, Plank, Board, Rails or Pales, be painted, and the Sap has not been washed or dried, and deadened out by Time, it will rot in a few Years: For take but a Board sawed out of a green Oak-Tree, or out of one that has been lately fell'd, and, though such Board is all Heart of Oak, it will rot in seven Years Time, if painted all over in that Condition; for Paint keeps the Sap in, and hinders its drying out. So in a Piece of Timber that is served thus, as many are for Sign-posts, and their cross Beams, and a hundred other Things, I say, these will rot in a little Time: Whereas, if such Heart of Oak had been soaked a due Time (or regularly painted) and then dried, it might last

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fifty or an hundred Years, or more; for it is the Notion of most Workmen, that the Worm will never breed in such Heart of Oak, but that it decays through meer Age, which causes it to moulder away little by little. A Gentleman's Pair of great Gates, made with wooden Frames, and iron Bars in them, rotted at twenty Years End, by Reason the Wood was greenish, and the Sap not thoroughly dried or washed out: For though the Frame-part was six Inches broad, and three thick, yet, by Painting the Wood in this unseasoned Condition, it was all rotted in so little a Time, though made of Heart of Oak. If a Man sits any Time on a new peeled Oak, it will give him a Looseness.

Why Posts, that are burnt at their Ground-ends to last long, do last the less While. This new Way of burning the Grounds-ends of Posts was, at first, thought to be very advantageous, and therefore in such common Use, that I know two Gentlemens Parks inclosed by them; but Experience shews, this Method does not answer its End, because the Vehemency of the Fire makes several Cracks and Rents in the Bottom of the Posts, which lets in the Water, and causes a swift Rot, for nothing rots even Heart of Oak sooner, than by letting it become sometimes wet and sometimes dry, for these Posts were many of them rotted in two, at twenty Years End. I suppose this Way at first was taken from the *Venetians*, as I shall shew by and by, and would be a most excellent Way, if the Fire could have so much Power of the Wood, as to penetrate it; but, in these Park-posts, it was only done in Part, and therefore they did not last so long as they would have done, had they not been burnt at all.

To season Oak, and make it last long. Saw it out as soon as peeled, before the Sun cracks it, whether
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it be in Planks, Boards, or other Shape. Throw them into a River, Pond, or Ditch, and let them lie all over in the same two Weeks, and the Water will soak or wash out the Sap contained in them. And if the Heart-part has a fappy one to it, this Washing, and a gradual Drying afterwards, will make such fappy Wood as hard almost as *Brasil* Wood. Or in Case you are not willing to soak the Plank, Board, or Timber in Water, you may make them much more durable, by only letting their Ends stand on the Cross-bar of a Chimney for three or four Days, or a Week, and the Smoke will ascend about all their Bodies, and so dry and impregnate the whole Wood with a smoky sooty Quality, as to prevent the Worm and Weather's Damage to a great Degree, both in Heart and Sap. But the best Way, of all others, is to soak them first, and then dry them in the Chimney, for this will make the Sap-part last as long as the Heart-part, for the Worm will never breed in such Wood; and though the Boards, Planks, or Timber may be warped, by the continual Heat of the Fire and Smoke, yet, if when they be taken down, they be instantly laid under a sufficient Weight, they will soon be brought into their first Shape: But you may expect to see them of a blackish dirty Colour, like *Brasil*, and which will give a Workman an Opportunity to smoothe their Outfides into a fine black Polish, and, by the whole Management, cause such Wood to last an incredible Time. And thus, I hope, this new Discovery of mine will in Time come into general Practice, and be a sure Means for us to enjoy Oak, Beech, Ash, and many other Woods, in the most lasting Manner.

Several other Ways to cure and preserve Timber.
For this Purpose the *Venetians* scorch their Timber in a flaming Fire, continually turning it round

with an Engine, till it has a hard, black, crusty Coat, and so it is brought to such a Hardness and Dryness, that neither Earth nor Water can penetrate it. A certain Person said he has seen Charcoal, that, in Probability, has been covered with Earth above fifteen hundred Years. Timber, that is cleft or reeded, is not so apt to rise and cleave as that which is hewn, nor squared as round. To prevent Cracking or Rising, some rub with a Wax Cloth, or Paint; or rub it over with Cow-dung, which will prevent the Effects of the Sun and Air upon it, if it is to lie exposed. But, for closing the Clefts and Chops of green Wood, anoint and supple it with the Fat of powdered Beef-broth, used with a Sponge, and done twice over. Some Carpenters use Grease and Saw-duft mingled; but the first is so good, that wind-shook Timber has been so exquisitely closed, as not to discern the Defects; but it must be used on green Timber. The *Hollanders* coat their Timber that is exposed to the Sun, with a Mixture of Pitch and Tar, on which they strew powdered Cockle-shells mixed with Sea-sand, and Scales of Iron beaten small, which arm it after an incredible manner. And, to prevent Fire, they rub it with a Wash made of Allum. But be sure to have your Timber well dried, or else the internal Moisture, for Want of Room to get out, will, as I said before, turn to Rottenness. Let Timber, that must touch Lime, be capped with Pitch, Loam, or Clay. Some affirm, that old Oak, old Walnut-Tree, and young Ash, are best for most Uses; but in Ship-work it does not hold good, for old Timber will be brittle. An Organ has been made of oaken Pipes, that sounded very harmonious.

Dr. Godfrey's Way to make Timber very durable.
Take of the Sand that is used in sawing large Stones (the finest Part of it) to which add the
thickest

thickest drying Oil. Spread that upon the Wood, which, when dry, will be like a Stone, and preserve the Wood a long while, which may be very useful for Fortifications, and other Works. But then such Wood should be thoroughly dried and seasoned, before the Paint or Composition be laid on, else the Wood will be rotten the sooner, for having such a Coat daubed or plaistered over it.

Of the Sap of Oak. It is the Notion of some Carpenters, that Felling an Oak in Winter is best, for that it makes the Wood of it endure longer, than when felled in the Barking Season, as having most Sap at that Time in its Body, though in a thick and dryish Condition, and therefore better for many Uses. Others say, that it is best fell'd in the two Months of *April* or *May*, when the Sap issues out between the Body and the Rhind, and is so much employed in furnishing new Matter to each Bough, Twig, Leaf, and Fruit, that there is less of it left in the Body, from whence they infer, that the Worm can't breed so soon in a Summer-fell'd Tree, as in a Winter-fell'd one. Others say it matters not, whether it be fell'd in Winter or Summer, for that the Sap may be extracted at any Time, if the Wood is soaked long enough in Water, and then it is most fitting for any Use; because the Pores or Interstices, which contained such Sap, become so many Vacuities or empty Holes, that, when dry, close up to the Shrinking of the Wood, and thus the Wood gets a finer Grain; for it has been observed, that a Board has shrunk near one Inch in ten of its Breadth, to the great Improvement of the Wood, by Reason the Matter that breeds the Worm, and continues the Moisture in Timber, is got out, and the Wood made to acquire a much harder and closer Body than it had before, which consequently secures it against Warping, and a quick Decay;

cay; for the Sap or Moisture, when it remains in the Wood, is apt to give in damp Weather, and tends towards the Rotting it, as being of an aqueous saline Nature, whose Particles cannot be easily burnt to nothing, for, by burning the Wood, the Sap or Salt gets fix'd in the Ashes; and of such a Body is this Sap, that when enough of green Wood, as Hoops, Staves for Casks, &c. are boiled in a confined Place, the Water will become glutinous thick, which, indeed, proves the Sap of Trees to be of such a Body as strengthens the Wood; and therefore steaming, I suppose, was thought better than Boiling Ship-planks, because the first Way makes them pliant, and yet keeps the Sap in, which is the more necessary to be done, as a Ship requires the greatest of Strength in her outward and lowermost Wood; for it is most certain, that the Loss of Sap causes boiled Hoops, Boards, or Planks, to be brittle, and easily break short. This is what the greatest Wood Author has not closely observed, though it is a Matter of Importance.

Of the several Sorts of Oaks. Let Authors write what they will of two different Sorts of Oaks growing in *England*, it is the Opinion of many who live among them, that there is but one true native Sort, as I said before, for that the spreading or upright Oaks acquire their Shapes as they are trimmed up, or as they stand open or close. But, if we would have different Species of Oaks, we must get Exotick Trees, by sowing their Acorns; and thus they may be easily made Dennisens of our *English* Climate. Of these there are great Variety, according to Mr. *Lawson's* Account from *Carolina*, as the Chesnut-Oak, which grows so high, that, if a large Bird sits on its Top, it is out of the Reach of a Gun charged with Shot, and has a Body of a proportionable Thickness, with so big
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and sweet an Acorn, that is therefore called the Chesnut-Oak. These are the largest Trees we have, and yield the fairest and best Plank, clear of any Boughs, for near sixty Feet together.—The red or scarlet Oak is admired for the Variety of its Leaves, and Colour of its Wood, which some fancy to be the true Mohogany Sort. It is a Tree, that, in rich Land, grows very large and lofty; but is so very porous, that it serves only to make Rails, Pipe-staves, good Clap-boards, &c. as being a Wood of no long Duration: However, its Acorns are now sold in the *London* Seed-shops, and Sets of these young Oaks may be had in Plenty at several Plantations and Nurseries about *London*; for I hear, that this particular Oak is in so much Esteem with many, as to be planted as a Rarity with great Earnestness.—The *Spanish* Oak has a smooth whitish Bark, rives well, and is reckoned a strong durable Wood, and therefore made Use of in Ship-building. All of this Sort bear good Acorns for fattening Swine.—The *Bastard Spanish* Oak is a Tree that partakes of the Nature of both the red, scarlet, and the *Spanish* Oak; it rends well, and serves therefore for making good Fences, Clap-boards, &c. It has a good Acorn.—The black Oak is a very durable Wood under Water, and serves very well for House-work; bearing good Acorns for Hogs.—The white iron or ring Oak has its Name from the long Duration of its Timber. It will prosper in poor Land, and is allowed to exceed all for Ship-building in *Carolina*, even beyond the live Oak, whose Planks run not so long as this; and therefore this black Oak is in more Esteem than that, though it will not last so long as the black Oak. This generally bears great Quantities of Acorns.—The Turkey Oak has its Name from its small Acorn, which are greedily devoured by the wild Turkeys
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of this Country.—The live Oak is an Ever-green, that affects to grow in sandy Soils, and has a Wood that lasts longer than any other in *America*; but not fit to cut Planks out of, because its Trunk or Body is of too short a Length, and is of so hard a Nature, that a Nail, being drove into it, cannot be drawn out, and therefore discourages the Sawyers from meddling with it: And though its Body is too short for Ship-timber, yet its Limbs are for the most Part so crooked, as to make excellent Knees, &c. for Vessels of the lesser Size. Its Acorns, sweet as Chesnuts, yield an Oil as good as that of Olive, but of an Amber Colour, and serves some to counterfeit the Cocoa, and with which they have made Chocolate, hardly to be distinguished from the true Sort. This Wood is also used to make Window-frames, Mallets, Pins for Blocks, and many other Things; is a very beautiful Tree, and not of the slowest Growth. It is said there are two Sorts of the live Oak, and both yield such good Accorns, as produce excellent sweet Pork, and are of so kind a Nature, as to grow and flourish in fine Branches, in fresh Water Ponds, in swampy Grounds, and by River Sides, as well or better than in dry Soils.—The Willow Oak, or Water Oak, affects to grow in Ponds; has a Leaf like a Willow, grows in many fine Branches, and serves for many Uses.—These excellent Oaks not only serve for building Houses, Ships, Fencing, making Casks, &c. but also for several medicinal Properties belonging to them, to the great Benefit of Man's Health: And therefore, it is to be hoped, these useful Trees will soon be much propagated in *England*, as well for these good Properties, as for Improvement of Land, since all of them will grow either in Vale or *Chilturn*, in dry or wet, and in rich or poor Lands.—I have only to add, that there is another Oak, called

called the white scaly Bark-Oak, good for building Ships, as being one of the largest Sort, but not so large as the Chesnut-Oak. It is called by this Name, because of its scaly, broken, white Bark, that is the Coat of this Tree, which affects to grow on dry Land, and bears a large Acorn.— Most, or all of these Trees, would make excellent Vistto's, Avenues, and Walks; but the Scarlet and Ever-green Oaks must certainly excel for these Purposes, and become a charming Ornament, while they grow into great Profit.

A particular Account of the Ever-green Oak. This Chapter leads me to take Notice of those Ever-green Oaks mentioned by Mr. Bradley, who says, that at *Mamhead* in *Devonshire*, in a shallow Sort of Soil of but nine Inches deep, before a red Rock appears, these Trees prosper'd so well, that, at forty Years End, the Diameter of their Bodies measured above a Foot each; and that the Height of one of them was about fifty Feet, with a straight taper Stem, without a Knot. I remember, says he, to have seen some Hogsheds made of the Wood of these Trees, when I was last in *Devonshire*, and brought some of it with me to Town; the Grain of it is like the finest Wainscot; but it is so very hard to work, that I question whether we have any harder Wood of the *English* Growth, unless it be Box; and I am informed, that the Cooper who made the Vessels I have mentioned, had almost double the Trouble in setting and working this Wood, that he usually had in working our common *English* Oak; but I doubt not, if he was to follow the ingenious and useful Method, lately contrived by Capt. *Cumberland*, for softening and bending of Planks, for the Use of Shipping, he would succeed much better. But this Notion of Mr. Bradley's, I think, I have sufficiently confuted, by the Cooper's Way I have

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lately mentioned, of reducing Staves by cold or hot Water, much better than by laying and sweating them in a Sand-Bed.—He also gives an Account, how a Gentleman transplanted near 100 of these Ever-green Oaks, and that after they were taken up early in the Spring, 1719, with as much Mould as possible, they were transplanted into Holes made on the Top of a Hill; and, fearing their Dying on this Removal, he counterplanted the Avenues with *English* Oaks. The Consequence was, that not above four of the Ever-green Oaks died, and that hardly so many of the *English* Oaks lived.

The Largeness and Worth of Oaks. Mr. Houghton says, an Oak of the Duke of Norfolk's spread almost fifty-five Yards square, and under its Shade 1000 Horse might commodiously stand at once.—At *Reedbam*, an Oak was valued at forty Pounds the Timber, and twelve Pounds the Lopwood.—Near *Newbury* was an Oak fifty Feet high to the first Bough, and cut five Feet square at the But-end, all clear Timber.—Another near the same Place, since the Wars in Forty odd, held 40 Feet excellent Timber, straight as an Arrow in Growth and Grain, and cutting four Feet at the Stub, and near a Yard at Top, besides a Fork of almost ten Feet clear Timber about the Shaft, which was crown'd with a shady Tuft of Boughs. This Oak, he says, was of so excellent a Kind, that it cut a Grain as clear as any Clap-board. — There was also a third Oak that grew near these two, of a very great Size, in a gravelly Clay, moistened with small and frequent Springs, and that these Oaks were not Three-hundred Years old.—Another Oak was bought by a Cooper, of which he made ten Pounds every Yard's Length, for three or four Yards. The Main-mast of the Royal Sovereign was ninety-nine Feet long, and thirty-five

five Inches Diameter.—In *Sheffield* Lordship stood an Oak, which hath eighteen Yards, without Bough or Knot, and carried a Yard and six Inches square at the same Height or Length, and not much bigger than the Root.—In *Firth* Farm, he says, there was an Oak worth eighty Pounds, and in the same there was another Oak had 10080 Feet of Board, about half an Inch thick.—In the same also stood a Tree, which after it was cut down, and laid on the Ground, two Men on Horse-back could not see one another's Hat-Crowns over the Tree. This Tree was sold for twenty Pounds.—And here it likewise was, that 100 Trees were standing, which were worth 1000 Pounds.—In *Worsop* Park lay the Bole of a Tree ten Feet long, and no Arm or Branch on it, and about thirty Feet about.—There were several Trees forty Feet long of Timber, which did bear two Feet square at the Top of forty Feet. At this Rate one of them, supposing it a Cylinder, would yield above six Tun of Timber.—In another there was an Oak called *Lady's-Oak*, that contained forty two Tun of Timber, and had Arms that held four Feet square, for ten Yards in Length.—One *John Garland* built a very handsome Barn of five Bay, with Pan, Posts, Beams, Spars, &c. of one sole Oak-Tree.—Another in this Neighbourhood was so large, that every Foot forward, one with another, was half a Tun of Timber; it bore five Feet square, and forty Feet long, &c. It contained twenty Tun of Timber, most of it sold for twenty Shillings per Tun; beside that, the Boughs, afforded twenty-five Cords of Fuel Wood, and then the Price of Timber was small, to what it is now.—In 1636, an hundred Oak-trees were sold for 100 Pounds; but, being thought too dear, the Buyer went from his Bargain, wherefore they continued growing till 1671, and then sold for 560 Pounds.—Another

sowed three Acres of barren Land with Acorns, and, in sixty Years, they were worth 300 Pounds. — He likewise observes, that, in some Parts of the World, they have no other Water to drink, than what their Trees afford them; not only by their proper Juice, but from their Attraction of the Evening Moisture, which impends in the Shape of an Evening Cloud over them, as in the Island of *Ferroe*, and many other Places; for, if their Woods were here once destroyed, they might perish for Want of Rain. — But how wonderful is the Contemplation of the Weakness of an Oak's Beginning, and the Grandeur of its Growth! — A Table measured five Feet in Breadth, nine Feet and a half in Length, and six Inches thick, all of intire clear Oak. — *Mercenas* tells us, that the great Ship called the Crown, which the late *French* King built, had its Keel Timber 120 Feet long, and the Main-mast twelve Feet Diameter at Bottom, and eighty-five in Height. But to come nearer Home: There is an Oak now standing in *Cheesham* Parish in *Bucks*, about seven Miles from *Gaddeſden*, that a Man bid fifty Pounds for. Another at *Linſlow*, about a Mile below *Leighton-Buzzard*, had 1000 Feet of Timber in it; it was forty Feet to first Bough, growing near a River, and for which the Owner was bid forty Pounds. — In *Wales* is an Inscription cut into the Wood of an old Beam, thus:

*Full sixty Feet in Length my Stem did bear,
Beside my Limbs, which very spacious were.*

Mr. Houghton's Way of propagating the Oak. First, says he, get your Ground into a good Tilth; then, if it is of the stiff Sort, sow your Acorns in *October*; if of the light Sort, in *February*. To do which, make Drills, or Rills, of four Inches deep,

deep, and of two Feet Interval. In these strow your Acorns that are dropping ripe, and from thriving Trees. *Note*, that six Bushels of Acorns will sow or plant an Acre of Ground, at a Foot Distance. As soon as they begin to peep, earth them up, especially after the Breaking of the greater Frosts; and, when they are an Inch above Ground, draw them, where they are too thick, and set them immediately in other Drills or Lines. When your Seedlings have stood till *June*, bestow a single Digging about them, and scatter some Horse-Litter in Rows, to preserve from scorching and keeping in Moisture; and then, in *March* following, dig it all into the Earth. Continue this Process for two or three Years together, for, till then, the Substance of the Kernels will hardly be spent in the Plant, which is of great Importance. Then you may prune the Branches, but spare the Top. Then plant them forth, where they are to continue, at forty or more Feet Distance; and the Intervals you may plant with Ash, which may be sell'd either for Poles or Timber, without the least Prejudice to the Oak. In Transplanting preserve the Roots and the Earth adhering to the smallest Fibres, which should by no Means be shaken off, for these tender Hairs are the Mouths and Vehicles which suck in the Moisture, and transfuse it into all Parts of the Tree. Staking and Propping up young Oaks are certainly a great Preservative to them; but in *Scotland*, they say, they let them take their Chance; and, if any fall by Winds, they raise them again, and thus strike Root so fast by loosening the Ground about them; that they soon become fixed of themselves; and though an Oak will grow tolerable well in most Grounds, yet they chiefly affect a sound, black, deep, fast Mould, rather warm, than over wet and cold, and a little rising. That Oak, which
grows

grows in Vale Land, grows to the greatest Stature ; but the Timber, from Hills, is far better, and of a finer Grain. Oaks never prosper in too cold, nor too hot a Country. A Cow-pasture is one of the best of Places for an Oak to thrive in ; but, to discourage none, Oaks exceedingly prosper in Gravels and moist Clays, yea, in the coldest Clays that will hardly graze ; but they frequently make Stands, as they meet with Variety of Footing, and sometimes proceed again vigorous, as they penetrate beyond or out-grow their Obstructions, and meet with better Earths, which is of that Consequence, that more than 100 Years Advance may be clearly gained by Soil and Husbandry. Out of the very Walls of *Silcester* in *Hampshire*, he says, some Oaks have grown of ten Loads a-piece, which seemed to strike Root into the very Stones. And, in the Forest of *Dean*, some good Oaks have grown upon Ground, which has been as it were a Rock of ancient Cinders buried there many Ages since. It is observed that Oaks which grow in rough stony Grounds, and obstinate Clays, are long before they come to any considerable Bigness ; but in Time they afford the most excellent Timber, having stood long, and got good Footing. The same may we affirm of the lightest Sands, which produce a smooth-grained Timber, of all others, the most useful for the Joiner ; but that, which grows in the Gravel, is subject to be most frow and brittle. An Oak will sooner run into Heart in some Earths than others. It begins in many Places to do this, at fifteen or twenty Years Growth. *English* Oak is infinitely preferable to the *French*. Cops oaken Hoops are much better than the Hazel ones, and will out-last six of Ash.

Of Transplanting Oaks. If you transplant Oaks at any Times, if the Roots are but sufficiently covered

covered to keep the Body steady and erect, it is enough, and then all the Mould possibly should be carried with the Roots; for, in this Condition, large Trees have been transplanted with Success at *Midsummer*, if they are planted to the same Aspect they stood in before; but, if in Winter, dig round the Trees Roots, so as almost to undermine it; then cast as much Water as may fill the Trench, or at least sufficiently wet it, unless the Ground were very moist before. Thus let it stand till some very hard Frost happens, and then carry it away to its new Situation, where it may be preserved from freezing again by Horse-Litter; but, if the Ground about it be over heavy, you may raise it by a Crane or Pully, hanging between a Triangle, which will raise it, with Mould about the Roots, and then you may bring it away on a Trundle, to be replanted where you please: And thus you may transplant Trees of a wonderful Stature, without Lopping off their Heads, which is of great Importance, where it is practised to support a Defect, or remove a Curiosity; but such Trees must be well protected for seven Years against Injuries.

The Character of English and Norway Oak. Of all the common Oaks growing in *Europe*, there is none so strong, tough, and fine-grained, as the *English*, because its Timber is closer pored than any of them, and therefore has not Room to lodge that Quantity of Sap, as others have. It is on this Account, that the Heart of *Norway Oak* (which, of the foreign Sort, is mostly in Use with us) will rot, when the *English* will not, for it was never known that the Heart of *English Oak* ever rotted by the Worm, if it had fair Usage, whether it was green or dry: But the worm Holes, that are often seen in *Norway Oak*, plainly discover, that the Heart of its Timber is so very porous, as to
con-

contain great Quantities of Sap, which is the Matter that breeds and nourishes the Worm, and which occasions the Destruction of this Wood, sometimes at a young Age. But to be more particular; the Goodness of Oak may be known (when dry) by its Weight, for it is generally allowed, that right good *English* Oak will weigh, one Fourth at least, heavier, than the *Norway* Sort, which, indeed, is of so soft a Nature, that it is almost as light as some Deal; for if a Floor was laid with such Oak, and a Person was to walk on it with nailed Shoes, he would leave an Impression of the Nails behind him. However, this *Norway* Oak is not without its several good Properties, as well as the *English*. It makes a fine pliant Wainscot, that works easier into Shapes than the *English*; and so, in many other Cases, it is preferable to ours, which is of a more stubborn Nature, and very hard to be reduced into the Make of several Instruments, that the *Norway* readily submits to. But the *English*, being much stronger and tougher, exceeds all the *European* Sorts for Ship-building; because its closer Body enables it to resist even the Balls of Cannon so stoutly, that, if one enters its Plank, it gives Way to it more by Squeeze, than by suffering a Piece to be drove out into Splinters, which the *Norway* Oak cannot so well do, as being of a lighter and more porous Body, that causes it to be easily penetrated, and to give Way to the lesser Force of Balls, and which therefore flies into large Pieces or Splinters, to the greater Danger of both Men and Ship; because it is supposed, that, if an *English* Oak is cut down at a right Age, and comes off a right Soil, it is three Times stronger than the *Norway* Sort; not but that there is some *English* Oak, which comes off bad Soils, that is not so good as the best *Norway*; but I write of the general Sort.

In

In 1738, I was told in *Kent* by a *Sawyer*, that Oak has been lain in Salt Water, and the Sap by this Means has been found to be harder than the Heart.

The Ashes of Oak. This Wood, as it is the King of Timber, so it yields the strongest Ashes of all the Timber Tribe, and therefore are excellent to lay on Grass or Corn Land, for forwarding the Growth of Vegetables. But there is a Difference in the Ashes of Oak; they are the strongest that are made from green Oak-Wood, before the Sap is wasted by Time, or washed out of it: So, likewise, they are the lightest, that are made from very old Wood, or from that which has been soaked or boiled, insomuch that a Pint of the former will weigh near as heavy again, as a Pint of the latter; which is a plain Proof, that Water will wash out the Sap of Timber, as well as Time will waste it. These Ashes are said to cure Ropiness in Beer; but the Lee or Lye of them, is not so fit to buck Linnen with, as that of other Woods; because this Sort is apt to stain the Linnen with a reddish disagreeable Colour. And here it may seem somewhat strange, that the Lee of these Ashes will not rot an oaken Buck-tub, sooner than it will a Tub made of all Deal; but it is Fact, as I shall by and by more particularly observe in the Chapter of the Fir-Tree.

Oak Mastle or Acorns. It is said, that a Peck of Acorns a Day, with a little Bran, will make a Hog increase a Pound Weight a Day, for two Months together. They give them also to Oxen, with Bran, chopped and broken. Some advise to macerate them first in Water, to extract their Malignity, lest the Cattle perish. Thus they are most proper for Swine; and, being so made small, will fatten Pigeons, Peacocks, Turkeys, Pheasants, and other Poultry. Acorns, it is said, were heretofore the Food of Men, by roasting them under
E Embers,

Embers, as many now do Chesnuts. Almost every Part of the Oak is a Sovereign Medicine against Fluxes. But to cure the Acorns for fattening Swine in *Hertfordshire*, we put two, three, or four Bushels, or more, in a Heap, on the Ground, and sling our Piss-pot now and then over them, which will force them into a Heat or Fermentation, and then into a Spire, almost as long as one's Finger, as they remain long enough in the Heap; and thus they are cured of a most venomous Quality, that seldom fails of giving Hogs the Garget, when the Acorns are eaten by them raw in a Style. To which I add, that, by such Spiring, the Acorn is made sweeter than when it falls off the Tree of itself, and thereby creates a keener Appetite in the Hog, and fats him sooner. But here I must observe, that it is too common a Practice for Invaders of another Man's Property, clandestinely to beat the Acorns off the Tree before they are ripe for their Swine, but such Usage hinders the Tree from bearing several Years.

Oak's Age. When an Oak is got past its full Heart, the Age of it is hard to be known; but, if it is cut down before that, it may be nearly guessed at, for then a Wrinkle or Circle will appear in its Body, and show by their Number, how many Years it is old, accounting each Circle for one Year. This is a surer Sign than the Wrinkles in a Cow's Horn, by which we guess at their Age; because they seldom have more than one Wrinkle or Circle, till five Years old, and that sooner or later, according to the Time of her Calving; but an Oak, Ash, Fir, Hazel, and most other Woods, shew these Marks at three or four Years old, when they are about the Bigness of one's Thumb; so that, if a Tree is cut at a right Time, it may be easily perceived, even from three or four Years of Age.

How

How an inclosed Field was sown with Acorns in a wrong Manner. By the Case mentioned in my first Part, of a Gentleman's Mismanagement in sowing a Field with Acorns, as at Pages 15 and 17, I can now say, he got a wretched scrub Parcel of young Oaks in the same, which came up so thin, that I believe there was hardly one Acorn in twenty, that grew in Perfection; insomuch that the ten Acres of Ground, that were sown for raising' a Wood, would have appeared almost a barren Plot, had not the Vacancies been filled up in Time with young Ashes, Beeches, and Sallows, which came up spontaneously, by their Seeds being carried by the Winds, Fowls, and Mice, to the same, from two adjoining Woods, and thereby caused such vast Numbers to grow so fast, that many of them were higher than the Oaks at Years End. But, to amplify this, I shall be more particular in giving an Account, that this Ground, which was sown with Acorns for a Wood in , joined to two several Woods of Beech and Oak, whose Soil was a gravelly Loam, as well as this. Now this same Land was an inclosed Field, that had a good Crop of Wheat on it, and for which it had been well ploughed and dunged; then, after the Wheat Crop had been gotten off, the Ground had only one Ploughing given it in *March* following, and the Acorns were strained' out of a Man's Hand in every Thorough or Furrow, as the Plough made them, and which was covered with Mould by a new Furrow that was turned upon them, till all the Seed lay in four-thorough Stitches, or two-bout Lands, as the Wheat did, and then immediately harrowed down almost to the Level; but there was no Dung, or other Dressing, used in the same. In short, the whole Field was sown in a rough and poor Order; and what added to the Misfortune was, that the Acorns lay all Winter in

a Chamber or Loft uncovered, and so thick, that they heated, and many of them spired, little or more, which proved one main Cause of this Loss, as I was an Eye-witness of: However, as this Plantation was directly shut up for good, the Grass grew and rotted every Year in the same, to the great Benefit of those few Trees that did grow. But, for making up the Defect, the Owner, after some Years were past, seeing the Nakedness of his young Wood, caused many small Sticks, or Cuttings of Sallow, about eighteen Inches, or two Feet long, to be thrust into the Earth a little sloping, in the Month of *February*, so that about one third Part of them was in the Ground, and the rest out, which succeeded so well, that most of them grew.

The best Way of raising a Plantation of Oak in the Chiltun Country. It is certain, that several Sorts of Earth, and their Situations, require different Managements for their Raising a Wood of Oak-Trees: And accordingly, in my first Part, I have laid down several Methods for their Propagation, both in *Chiltun* and Vale Lands. Now, therefore, I have to observe, that all Ground, to be sowed with Acorns, should be often ploughed, till it is gotten into a good Tilth, and well dressed with a strong lasting Manure. But, to be more particular, I shall confine my Pen to this same Field I have been writing of, which is a loamy Gravel, as I said before, and inclosed with a common Hedge of several Sorts of Wood, whose Surface lay so near a red Clay, that the Acorns, when sprained into its deep Thoroughs, remained in some Places within two or three Inches of the same, which soon stunted their Growth; and, by these several Disadvantages, caused them to grow very slowly, into scrubbed dwindling Bodies. Here, therefore, I shall shew the Mistakes that attended

this Work, by laying down a Process, that would have effectually answered the common End.

First. The Land, as soon as the Wheat had been gotten off, should have been ploughed, by laying the Striches into broad Lands, with the Wheel-fallow, or other Plough, and then immediately harrowed plain. In this Posture, it might lie till the Beginning of *December* following, when twenty, or more, good Cart-Loads of rotten Dung should be put on every Acre, or thirty Bushels of the same Sort of Horn-shavings, or twenty of Cows Hair, or of Wool-marks, or twenty Bushels of Pigeons or Hens-dung, or twenty Loads of Mould mixed with small Chalk or Lime, or other sufficient Dressing or Compost, on the same Quantity of Ground, and be ploughed into the Earth with the same Plough in sharp Bouts, which, by *February* or *March*, will be well incorporated, and by Frosts and Rains so mellowed, as to cause a sweet hollow Tilth; then it is, that these Bouts are to be Back-bouted, or what we call Bouted-down, to bring the Land into a plain even Posture; and that it may the better be so, the Harrows should follow, and be directly drawn over it both long and cross Ways, and now it is ready for the last Plowing and Sowing.

Secondly. As soon as the Acorns begin, or are ready to drop from the Oak, with a Ladder, gather as many, or more than you want, that you may chuse out the biggest, which is the best Seed, and thus prevent them falling on the Ground; for then they would be a little bruised, and consequently damaged in a small Degree. When you have your Quantity, lay them thin on a dry Chamber-floor, with a little Straw, spread thinly over them, to keep the Frost out: Or in dry Sand, in Layers of one and the other, that their Radicles, or Root-Spires, may be prevented shooting forth; if they do,
they

they will not grow, at least very defective; on which Account, the Acorn must be gathered in a dry Time, if possible, that they may keep sound till Sowing-time.

Thirdly. If the Acorns are not saved for sowing in *February* or *March*, it may be done another Way; that is, the Land may be prepared by several Plowings, and a full Dressing, between *Alballows-tide* and *Alballows-tide*, and, after it is so well plowed and manured, the Seed may be sown in the Manner following: As soon as gathered, Drill should be made at every two Feet Distance, and this may be done with the Foot-plough, the two-wheel Pea-stitch Plough, or better with a double-breasted Drill-plough. If the Surface is shallow, or a lean Clay, a hungry Gravel, a dry Hurlock, or a poor Sand is underneath it, then the Foot or Swing-plough will do well, because it will plow very shallow; but, if the Soil be a loose, deep, hazel Mould, then the pea-stick-wheel-pecked-share Plough may answer the Purpose. But, above all there is none comes up to the Drill-Plough, because it may be kept to a certain Depth, which is very necessary on these Accounts. Thus, when this or any other Plough makes a Drill, a Man is to follow, and drop an Acorn at every Foot Distance, and so on throughout the Field; then cover all by a Hand-Hough, or by drawing the Harrows over the Whole, and the Work is done. But there are several other Ways to sow Acorns for a Wood, according to the Nature of the Ground, and its Situation, as when it lies more or less wet; then it will be requisite to sow the Seed in two, or three, or four, or six, or eight Bout-lands, which, in a great Measure, will prevent the young Oaks being spoiled by Inundations, and Chills of Water and Ice. And thus, when Acorns are sown in *October* or *Novem-*

November, it is according to Nature's own Way, as I presume, I have sufficiently proved in my first Part; for this Tree by Right, no more than the Wallnut-Tree, should never be transplanted; because its Tap, main and best Root, is thereby spoiled, which of all others should be preserved, as running deepest into the Ground, and there draws a great deal of Nourishment in the driest Seasons; and indeed, it is this Tap, or long Root, that is the chiefest Stay and Support of this magnificent Tree, against the Violence of Storms and Tempests.

To improve the Growth of young Oaks. But, to have thriving Trees in a little Time, there is something to be done after the sowing Part is finished. If the Acorns are put into the Ground in *October* or *November*, and the Winter following happens to be a mild one, there is no great Danger of the Spires being spoiled by Frosts, because they will hardly come out Time enough till the Spring following: However, for fear of severe cold Seasons, and for the better Security of your Seed, be timely with some Assistance, by scattering over the Drills either Horse-litter, Soot, powder'd Lime, Fowl-dung, Peat, or other Ashes, Oil-cake Powder, Malt-dust, or such like Manure, that the subsequent Rains may wash it in, and make them better resist the Chills of Frosts or Waters, and also prove an Antidote against the Damage of Mice, Moles, Squirrels, and other Vermin. Next to this, in the Summer-time, keep your Vacancies clean from Weeds with the Hough, to prevent the young Oaks being retarded in their Growth by them; and so on, every Year, for several Years. But the *Dutch* Hough will answer this Work the best of any; because, with this, you may hough a great deal in one Day, with more Ease than with any other. And if you please, you may set

set a single Row of the broad *Windsor* Bean between the Drills, which will shade the young Oaks, and rather forward, than impede their Growth. Or, if you don't do this, it will be a great Improvement to them; if you dig rotten Dung, or other good Compost, in between the Rows, for such will greatly nourish the young Plants, and give you a plentiful Crop of Beans or Pease, or Cabbages for several Years. *N. B.* Almost any Soil is proper for some profitable Tree, though it is good for nothing else. — In 1738, I was told by a Cabinet-maker, that Oak has afforded a most beautiful, knotty Fanneer, if it is a right Sort of Stick, and cut down at a right Age. Oaks from the first Semination are, in some Places, ready to be cut for Cops-Wood in fourteen Years; and some Acorns, set in Hedge-rows, have, in thirty Years, had Stems of above a Foot Diameter. Generally Cops-Wood should be cut close and smooth, lest the Water get into their Stems and rot them.

Pruning Oaks. If an Oak is pruned as it should be, it will run up more in Height, than in a spreading Form, as I have experienced, for I have them growing in my Wood, and in Hedge-rows. And if any desire an Oak to grow in Height, more than in the Spread, then it is necessary to prune the side Shoots, either in Winter or Summer, to further the Growth to the main Stem. Likewise take Care to leave Shoots below each other; for, when they grow even, the Tree's Body will be bigger in that Part than ordinary, and cause prejudicial Knots: But, above all, cut away and keep down all Suckers, that may shoot out at the Bottom of the Tree, for they are commonly very destructive to the Tree's Growth: So all Moss and Ivy should be carefully Sept off, for they have a Sort of Roots belonging to them, by which they feed on, and are much nourished by the Bark of the

the Oak. Yet this noble Tree must not be left with so slender and narrow a Head, as to hinder the Wind from shaking its Body; for I can assure you, that when such a Tree has Head enough on it, as to be easily shaken by the Wind, it very much promises a speedy Growth in such an Oak.

When Oaks are to be felled. The State and Condition of an Oak-Tree may be known by piercing it, or by digging about its Roots, or, when the Tree perishes at Top, it is ever the Mark of great Decay in the Roots. There are also swelling Veins about the Bark, that twine like Ivy, and are an infallible Sign of their Hollowness, and consequently high Time to fell it. In *April*, some say, is a wrong Time to cut down Oaks, because, while the Tree is over moist, they are not so fit for the Axe, as being more obnoxious to Putrefaction and the Worm. But, to make such a seasonable Time, a Gash should be first made in the Pith of the Tree, for the Sap to run out, before it is sawn or hewn down; for the Vessels, that ascend in the Bark are called Arteries, and those, that descend in the Trunk, or Body, are the Veins. Some, again, will not fell a seedling Oak, because, they say, it produces a reddish Wood not acceptable to the Workman. Also that Tree, that grows on the Head of its Mother, is seldom a good Timber one. One Foot of Timber, near the Root, is worth three further off. To make excellent Boards and Planks, some advise to bark Trees in a fine Season, and let them stand a Year, before Felling, to harden the Sap, as I have observed in my first Part of the *Timber-Tree*. It is said, that the *Venetians* let their Oak lie some Years in Water before Using it. Others bury their Oak a Foot in the Ground; others, in Wheat; and some cure it by Fire. I was told, that a Gentleman in *Sus-*

ſex loſes 500 Pounds a Year, for want of felling his Oak.

The medicinal Virtues of the Oak, &c. The Diſtilled Water of the Acorns is good againſt the Phtthick, and Stict in the Side; heals inward Ulcers, breaks the Stone, and refrigerates Inflammations, being applied with Linnen dipped therein: Nay, ſome affirm, that Acorns, eaten faſting, kill Worms, provoke Urine, and break even the Stone itſelf. Oaks bear a Knurr, full of a cottony Matter, of which they anciently made Wick for their Lamps and Candles; and *John Prevotius* mentions an Oil of Acorns, chymically drawn, which he affirms to be of the longeſt Continuance, and leaſt conſumptive of any, for ſuch Lights. Oak-leaves, laid thick on Snow, preſerve it as well for Wines, as a deep Pit, or the moſt artificial Refrigeratory. *Varro* affirms, they made Salt of Oak, which they ſometimes uſed for Meat, but chiefly to ſprinkle among, and fertilize their Seed-Corn; and without Doubt, 'twas better for their Corn, than Meat; for ſuch may be made of our Pot-aſhes. And Mr. *Houghton* ſays, that the Aſhes and their Lee are good to buck Linnen with, and to cure the Ropineſs of Wine; and whether the Acorn would not tan Leather, as well as the Bark, is ſubmitted to Trial. The Ground-Oak, while young, is uſed for Poles, Cudgels, and Walking-Staves. Moſt Roots have ſome Excellency for ſair, beautiful, chamleted, and laſting Timber, applicable to many Uſes; ſuch as formerly made Hafts for Daggers, Hangers, Knives; Handles for Staves, Tobacco-Boxes, and elegant Joiners Work, and even for ſome mathematical Inſtruments of the larger Size, to be had in, or near the Roots of many Trees: Neither are to be omitted the Galls, Miſſetoe, Polypod, Agarick, Uva, Fungus's to make Tinder, and many other uſe-
ful

ful Excellencies, to the Number of above twenty; which, doubtless, discovers the Variety of Transudations, Percolations, and Contextures of this admirable Tree; but, of the Fruits and Animals generated of them, *Redi* promises a Treatise; in the mean Time, let me add here, that I was told, by a Distiller in *London*, about the Year 1735, that the Leaves of the Oak, distilled, will yield a potent Spirit. *Pliny* affirms, that the Galls break out altogether in one Night, about the Beginning of *June*, and arrive to their Growth in one Day. I suppose he means the Oak-apple, as we call it in *Hertsfordshire*; and these are so readily disposed for Bearing, that, after a Tree has been felled to peel, the Oak-apple, or Gall, has come out. Galls are of several Kinds, but grow upon a different Species of *Robur* from any of ours, which never arrive to any Maturity: The white and imperforated is best. Of the Galls is made the Ground and Basis of Ink, and several Dyes, especially saddler Colours. The white Moss composes the choicest Cyprus-powder, which is esteemed good for the Head; for this has grown, sometimes, on the Body of the Oak, a Foot or more, long. Young red Oaken Leaves, boiled in Wine, make an excellent Gargle for a sore Mouth; and almost every Part of the Oak is a sovereign Medicine against Fluxes in general. Oaken Coals, beaten and mixed with Honey, cure the Carbuncle; to say nothing of the Viscus's, Polypods, and other Excrescencies, of which innumerable Remedies are composed, noble Antidotes, Syrups, &c. In short,

*When Ships for bloody Combat we prepare,
Oak affords Plank, and arms our Men of War;
Maintains our Fires, makes Ploughs to till the Ground;
For Use no Timber like the Oak is found.*

*Our Fleets, that now the Seas command,
 Were late upon our Island growing ;
 Her wholesome Stores, for every Band,
 As late within her Fields were lowing.
 While thus the Means for Naval Arms
 The Product of our Land suffices ;
 What then she wastes supports her Farms ;
 From new Demands new Profit rises.*

C H A P. II.

Of the A S H.

IN several of the foregoing Accounts of *Oak*, I have been more particular in its new and latest Improvements, than any before me. But, in this Chapter of the *Ash*, I shall follow Mr. *Houghton*, who gives a plenary Account of it, and because it differs in many Respects from my Chapter of the *Ash* in my first Part.

The Propagation of Ash. This Tree bears its Seed, he says, in single Teguments or Coverings, and these Seeds are contained in membranous Coverings, being alate Seed-Vessels or Keys, and single, having winged Leaves, a smooth Bark, and a tough Wood.

The *Ash* is with us reputed Male and Female, the one affecting the higher Grounds, the other the plain, of a whiter Wood, and rising many Times to a prodigious Stature ; so as in forty Years, from the Key, an *Ash* hath been sold for thirty Pounds : And it is credibly reported, that one planted so many *Ashes*, as, in his Life-time, were fairly valued at 50,000 *l*.

There is also a more lower and knotty Sort.

The Keys being gathered from a young thriving Tree

Tree when they begin to fall (which is about the End of *October*, and the ensuing Month) are to be laid to dry, and then sowed any Time betwixt that and *Christmas*; but not altogether so deep as Beech-Masties. Thus they do in *Spain*, from whence let us get some of their Keys of their best Trees, a few whereof will be sufficient to store a Country. They will lie a full Year in the Ground, before they appear; therefore you must carefully fence them all that Time: But, if you would make a considerable Wood of them at once, dig or plough a Parcel of Ground, as you would prepare it for Corn, and with the Corn, especially Oats (or what other Grain you think fittest) sow also good Store of Keys: Take off your Crop of Corn or Seed in its Season, and the next Year following, it will be covered with young Ashes, which will be fit either to stand (which is best) or be transplanted for divers Years after: And these will be far better than those from Woods (especially Suckers, which are worth nothing) being removed at one Foot Stature, (the sooner the better) provided you defend them well from Cattle.

The Reason of this hasty Transplanting, is to prevent their obstinate and deep Rooting, which makes them hard to be taken up, when they grow older; and, being removed, they take no great Hold till the second Year, after which they come away again: Yet some, of five or six Inches Diameter, have thriven as well as the smaller Wands. You may accelerate their Springing up by laying the Keys in Sand, and some moist Earth, *S. S. S.* or a Row of Earth and a Row of Keys; but lay them not too thick, or double, and in a covered, though airy Place, for a Winter before you sow them; and the second Year they will come away greatly, so you trim and cleanse them. Cut not his Head at all (which, being young, is pithy) nor
by

by any Means the fibrous Part of the Root; only, that downright, or Tap-root, is to be totally abated: But this ought to be in the Increase of *October* or *November*, and not in the Spring.

To manage Ash well. Excellency of Ground-Ash. Grafting of Ash. Where Ash grows best. Ground Ash as good Timber as the Oak. The Ash will grow when the Bark is off. 'Tis better to spare the Head than the side Branches of the Ash (which, while young, may be cut close) because, being yet younger, it is but of a spongy Substance; but, being, once well fixed, you may cut him as close to the Earth as you please; it will cause him to shoot prodigiously, so as in a few Years to be fit for Pike-staves; whereas, if you take him wild out of the Forest, you must of Necessity strike off the Head, which much impairs it.

Young Ashes are sometimes in the Winter Frost burned black as Coals, and then to use the Knife is seasonable, tho' they do commonly recover of themselves slowly. In *South Spain*, after the first Dressing, they let them grow till one, being split in four, will make four Pike-staves. From these low Cuttings, come out Ground-ashes, so much sought after for Arbors, Espaliers, or other Pole-works: They will spring in Abundance, and may be reduced to one for a Standard-Tree or Timber.

Ash will be propagated from a Bough slipped off with some of the old Wood, a little before the Bud swells; but with Difficulty by Layers. Such as they reserve for Spears in *Spain*, they keep striped up close to the Stem, and plant them in close Order, and moist Places. These they cut above the Knot (for the least Nodosity spoils them) in the Decrease of *January*, which were of the latest for us. Some say the Ash will receive a Graft of its own Kind, or be inoculated with the Pear and Apple.

'Tis

'Tis ill to plant Ash in Plough-lands; for the Roots will be obnoxious to the Couster, and the Branches, dripping upon Corn, spoil it; but, in Hedge-Rows and Plumps, they will thrive exceedingly, where they may be disposed at nine or ten Feet asunder, and sometimes nearer. But, in planting a whole Wood of several Kinds of Trees for Timber, every third Set, at least, should be an Ash.

The best Ash delights in the best Land (which it will soon impoverish) yet grows in any, so it be not over stiff, wet, and approaching to the marshy, unless it be first well drained: By the Banks of chrystal Streams, they thrive infinitely: There is as much Difference in the Timber of the Ash, as the Oak, much more than is found in any other Kind of Elm, for so the Ground-Ash (like the Oak) much excels a Bough of the same Bulk, for Strength and Toughness; and yet, in further Emulation of the Oak, it has been known to prove as good and lasting Timber for Building, nay, preferred before it, where there has been Plenty of Oak; vast Difference there is also in the Strength of ground and quartered Ash: 'Tis likewise remarkable, that the Ash, like the Cork-tree, grows, when the Bark is, as it were, quite peeled off. Some also is curiously camleted, and veined so differently from other Timber, that it is prized equal with Ebony, and has the Name of green Ebony.

Camleted Ash not inferior to Maple; Use of Ash; Felling of Ash. To bring camleted Ash to that Lustre, as hardly to distinguish it from the curiously diapered Olive, it is varnished with the *China* Varnish, which infinitely excels Linseed-oil. This is nothing inferior to the diaper'd Maple, and 'tis waved, like the Gamaties of *Achates*.

The Use of Ash is (next to that of Oak itself)
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one of the most universal; it serves the Soldier for Spears, the Carpenter, Wheelwright, and Cartwright for Ploughs, Axle-trees, Wheel-rings, Farrows, Oars, the best Blocks for Pullies and *Sheffs*, as Seamen name them; and, like the Elm, for the same Property (it not being so apt to split and scale) excellent for Tenons and Mortises: Also for the Cooper, Turner, and Thatcher; nothing like it for our Garden-palisade-hedges, Hop-yards, Poles, Spars, and Handles, Stocks for Tools, Spade-trees, &c. In fine, the Husbandman cannot be without the Ash for his Carts, Ladders, and other Tackling, from the Pike to the Plough, Spear, and Bow; for of Ash were they formerly made, and therefore reckoned among those Woods, which, after long Tension, have a natural Spring, and recover their Position, so as, in Peace or War, it is a Wood of highest Request. There is extracted an Oil from the Ash, by the Proceſſion of other Woods, which is excellent to recover the Hearing, some Drops of it being distilled warm into the Ears; and, for the Caries, or Rot of the Bones, Tooth-ach, Pains in the Kidnies, and Spleen, the Anointing therewith is most sovereign. The Chymists commend the Seed of Ash, as an admirable Remedy for the Stone. The Manna of *Calabria* exudes from the Leaves and Boughs of this Tree, during the hot Summer Months, or rather, according to my own Opinion, is fittest to receive it from the Air. Lastly, the white and rotten Dottard-part composes a Ground for sweet Powder, and the Truncheons make the third Sort of the most durable Coal, and is the sweetest of our Forest-fuelling, and the fittest for Ladies Chambers; it will burn, when green. The dead Leaves afford (like those of the Elm) Relief to our Cattle, in Winter; and there is a Dwarf Sort in *France* (perhaps, 'tis our Witchen Tree) whose Berries

feed the poor People in scarce Years; but it bears no Keys, like ours, which, being pickled tender, afford a delicate Salading. But the Shade of the Ash shelters a noxious Insect, and for their Leaving so late, and Falling so soon, not to be planted for Umbrage, or Ornament; especially near the Garden; because the Roots are prejudicial, and the long-leaved Stalks are drawn, by Clusters, into the Worm-holes, and foul the Allies with their Keys.

The Season for felling this Tree must be, when the Sap is fully at Rest; for, if it be cut down too early, or too late, it will be so obnoxious to the Worm, as greatly to prejudice the Timber: Therefore, be sure not to fell, till the three mid Winter-months, beginning about *November*. But in Lopping of Pollards (as of soft Woods) some advise towards the Spring, and that the Tops grow not too great. As soon as a Pollard comes to be considerably hollow at the Head, cut it down, for else the Body will decay more than the Head is worth: The same is to be done with taller Ashes, where the Wood-pecker makes Holes (who constantly indicates their being faulty.) In short, this is not only a most necessary Tree, for a vast many Uses, but also a very profitable one, by its quick Growth, when it stands in agreeable Land. One Mr. *Edmund Salter* planted an Ash, and before his Death sold it for forty Shillings: I will not reckon, says he, the Ground, this Ash grew on, to be worth any thing; but suppose the Ash, when planted, was worth but one Shilling, and the Man lived but eighty-four Years after, the Shilling would amount to six Pounds eight Shillings, which is far better than forty Shillings.—Thus far Mr. *Houghton*. The next is my Account.

The Value of Ash. Ash is commonly in its Prime at fifty Years old, and, though it may increase in Bulk after that Time, its Inside will begin decay-

ing. An Ash is so profitable a Tree, that it has been justly computed to pay as much to the Owner at thirty or forty Years End, as an Oak at seventy : Because the Uses of young Ashes are many more than those of young Oaks, on account of the sudden decaying Quality of such sapling Oaks, and the Duration of such young Ashes. Likewise when an Ash is at its full Age, and clear of Knots, it will sell for as much Money as most hearted Oak. In the Year 1739, I sold the lower Part of an Ash's Body for sixteen Pence a Foot to a Cooper of *Ivinghoe*, to rend out for Hoops, which Ash grew in one of my Hedges, whose Soil was a loamy Gravel in an inclosed Field. But I have known a large-bodied Ash that grew on a red clayey Bottom, within a Mile of *Gaddesden*, sold for eighteen Pence a Foot, to a Carpenter, who sold the Wood again to a *London* Coach-maker, for making Part of the Coach-Box, and other Things belonging to a Coach.

The Difference of Ash. It is allowed by the most skilful Workmen, that the best Time to fell Ash is about *Allballows-Tide*, because then the Sap is thought fixed and free from Circulation, whereby the Wood becomes tougher, and more fit for many Uses, than that felled in the Spring or Summer-time, when the Sap runs in a thin Liquor all about the Inside of the Bark. But there is a considerable Difference in Ash : That which grows on a chalky Soil, grows more slow than that on the more stiff Land, and therefore the Grain is closer, and the Wood shorter, in such white, dry, loose Earth, than the Ash that comes off a Gravel-Loam, or Clay; for the stiffer and richer the Soil, the faster the Ash grows, and the faster it grows, the more porous and tough will be its Wood. An Ash is a Wood that runs into Heart like an Oak, but not near so fast; when it is so,
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the

the Heart-part has a reddish Cast, and the Sap-part all white. I have known an Ash-Tree, whose Body was near two Feet square, all Heart, except two Inches Thickness of Sap which the Wheeler that bought it was obliged to cut off; because it was so frowy and short, as to be good for nothing else but the Fire. So when an Ash is half-hearted and half sappy Wood, if a Sliver or long substantial Piece is taken off the sappy Part, and a Man strain the same cross his Knee, he may easily break it short in two. But it is otherwise with the Sap of Ash, when the Tree is all sappy Wood, for then such Timber, or young Wood, is in its highest Perfection of Toughness for the Wheeler, Cooper, and many other Tradesmens Use. But the Sap-part of this Tree is in its worst Condition, and good for little else but to cut into Boards, or for the Fire, where there is any Quantity of Heart grows to it. Ash, that grows on a dry chalky Soil, has a Ground-end very tough; and when it is a full grown Tree, it will hold its Toughness for about six Feet high, and then it grows short and brittle: But an Ash, that grows on a Clay, will, at its Maturity, hold such Toughness twenty Feet high. When an Ash is lopp'd, and from a Standard made a Pollard, by such Lopping, I say that such an Ash, from that Time, grows frowy, short, and spungy, because the Body is check'd in its Growth to a great Degree. On *Gaddefden Hill* that contains on its Top a Level of three Miles, is produced the toughest and best of Ash, because it grows on a loamy Surface of about a Foot deep, and under that a red Clay.—This Wood, and Walnut-tree, I am informed by the Cabinet-maker, makes the best of Fanneer; and, of the Ash, the Pollard exceeds.

When an Ash is to be cut down. When an Ash is cut down in the Winter-Season, and the Wind

is then in the South, it is said the Worm will take it sooner by half, than if cut down when the Wind is in the West, North or East. And if Ash is cut down in the Spring-time, it will be coloured reddish by the Sap, that will cause it to be near as high colour'd as Blood; but if such an Ash is suffered to lie in Water forty-eight Hours, as soon as it is felled, the Sap will be extracted out, and not colour the Water.

An Ash that grew out of a Chimney. An Ash will grow well both in Vale and *Chilturn* Grounds. In the former, if it is a good Soil, it will grow very large, and in the latter it will thrive well. In the Vale springy blue clayey Land, I have seen very large Ashes; and, in gravelly Loams, I have known them prosper. And there is a particular Instance of an Ash growing in a dry Soil or Composition, even out of a Gentleman's Chimney, near *Edlesborough*, in *Bedfordshire*; where an Ash grew on the Slope-part of an Out-house large old-fashioned Chimney, whose Root was thirteen Feet from the Ground, and its whole Body, that was about the Bigness of the Calf of a Man's Leg, run up twenty Feet high; which Ashen Tree, by the Sway of the Wind, caused several great Cracks in the Chimney, and yet, for Rarity sake, the Owner would not be persuaded to cut it down.

Of Ashen Hoops. Some Coopers boil their Hoops, to make them easily bend to their Desire: Others will bend them without Boiling or Soaking; for these say, their Hoops are made of such good Ash, that it does not want it; because Boiling is to oblige frowy, short, decayed Ash to bend into broad Hoops, which, without Boiling, could not be done; for then they would sooner break than bend; but so potent is the Power of hot Water, as to make Ash bend and twist, almost like some sort of Leather; wherefore, those Coopers, who
boil

boil their Hoops, are commonly those that sell them again to other petty Coopers, at a cheap Rate ; for, by this, they have an Opportunity of buying bad Ash for a low Price, and making it off in the Sale of such broad Hoops ; but this Mode of boiling Hoops, in their long narrow Copper, is chiefly used to force the Arms of Ashen Trees to bend into Hoops, which being more brittle than the main Body of the Tree, they can't be reduced into a circular Form without it : But these Sorts of bad Hoops suit the Intention of some ill-minded Coopers best, who think the Strength of the Work is the Decay of Trade. The Heart of Ash is reddish, and then, as I said before, the Sap of such hearted Ash, the Wheeler says, is good for little else but the Fire : But the Cooper says otherways, and that, with such decayed short Sap-Ash, he can make Pails, Tubs, and some other Things to Advantage, on his Side.

Mr. Lawson's Account of Ash. In America, he says, there is not much Difference between this and the *English* Sort, in their Grain. Here, he says, are two Sorts ; one Sort is tough, like the *English*, but differs something in the Leaf, and much more in the Bark. Neither one, nor the other bears Keys. The Water-Ash, he says, is brittle ; the Bark serves the Beavers for Food.

A new Invention for the Improvement of Ash. It was about November 1740, that a considerable Number of young Ashes were taken out of a Wood, whose Bodies were near two Inches Diameter, and in Length eight Feet, in order to transplant ; and accordingly they were transplanted, after the Heads were first cut off close to their Bodies, within a Foot or eighteen Inches of each other, in a direct Row, at the Distance of two Feet, from that Part of *Ashbridge* Park-pales, at *Nettleden*, in *Bucks*, where they stand like so many
naked

naked Quarter-Staffs. Now, by this close regular Plantation, the Ashes are made to grow into fine upright Heads, and must necessarily flourish very fast, when their spreading Roots reach the fertile High-way, near to which they are planted; and that they may not be disturbed by Wind, Cattle, or other Incident, they are confined to their Place, by the Twisting of a large double With about their Bodies, all the Way, at, three Feet from the Ground, and by a Parcel of Thorn Bushes laid, as it were, in a long Heap, throughout the Row, before their Bodies, so that nothing can touch them before, nor come at them behind. The Advantages, accruing from this Mode of Planting, are these: First, the young Ashes, by increasing in Timber, will become very profitable for selling to the Cooper, and others, at nine Pence, a Shilling, or more a Foot. Secondly, they will yield a serviceable Subsistence to the Deer in Winter, by the Lop of their Heads, which in snowy Seasons especially, the Bucks and Stags will greedily brouse on their Twigs and Bark, to the Preservation of many of their Lives. Thirdly, the Ashes will grow so close together, as to touch one another with their Bodies, and so become an impregnable Fence against the Escape of these wild Creatures, and the Rapine of Deer-Stealers, and thus save the great Charge of dead Paling, or Fencing, which oftentimes, by their being rotted or blown down, give an Opportunity for the Loss of several of them. The prickly Ash of *America* grows like a Pole, and these Poles are made use of by the *Indians*, to fasten their Boats or Canoes to, along the Shore, being very light, and full of Thorns or Prickles, bearing Berries in great Clusters, of a Purple Colour, almost like the Alder, and its Root is said to be Cathartic and Emetic, useful in Cachexies.

C H A P. III.

Of the BEECH.

MR. Houghton's *Account of Beech*. He says, it is an *European* Tree, containing, in one common Husk, several Nuts, whose outward Bark is prickly, has a roundish shining Leaf, and Nuts of a triangular Form; he will have it, that there are two or three Kinds with us. The Mountain, (where it most affects to grow) which is the whitest, and most desired by the Turner; and the wild Sort, which is blacker, and more durable. They are raised, says he, by the Mast, like Oak, or first by a Nursery, and then transplanted; but the safest way is, to sow the Mast in *February*, or *March*, lest the Vermin eat the Seed in the Ground, if sown in *October* or *November*. In the Vallies, where they stand warm, he says, they will grow to a stupendous Height, though the Soil be stony and very barren. Likewise on the Sides of chalky Hills, where they will insinuate their Roots into the Bowels of those, seemingly, impenetrable Places, not much unlike the Pear or Fir-Tree; and farther, that *Virgil* reports, it will graff with the Chesnut, and serve for various Uses to the Housewife, according to the Verse,

*Hence, in the World's best Years, the humble Shed
Was happily and fully furnished:
Beech made their Chests, their Beds, and the join'd Stools;
Beech made the Board, the Platters, and the Bowls.*

Beech, he says, makes Dishes, Trays, Rims for Buckets, Dresser-boards, &c. likewise for the Wheelcr, and Joiner, for large Screws; for Upholsterers, for Settees, Chairs, Stools, Bedsteads, &c. and several other Uses, as Bellows, Shovels; Floats
for

for Fishers Nets, instead of Cork, are made with Bark, Billet, Bavin, Coal ; not to omit the very Shavings for Fining of Wines ; the Ashes of Beech is good for Grass-ground, and, with a proper Mixture, for making Glass with. If it is kept under Water, its Timber is little inferior to Elm, as Shipwrights say ; its Rind serves to make Strawberry-pots, and to preserve Wine in, and Cups ; for, as he says,

— Nor Wars did Men molest,
When only Beechen Bowls were in Request.

With the Scale of this Wood, they make Scabbards for Swords, and Band-Boxes. In the Hollow of these Trees Bees delight to hive. Some commend it for Oars ; and some say, the vast *Argo* was built of the *Fagus*, or Beech, a good Part of it at least, as we learn out of *Apollonius*. The Masse is of great Use to fat our Swine, or Deer, and hath, in some Families, even supplied Men with Bread. *Cbios* endured a memorable Siege, by the Benefit of this Masse ; and, in some Parts of *France*, they now grind the Bark in Mills. It affords a sweet Oil, which the poor People eat willingly. But there is yet another Benefit, which this Tree presents us ; that its very Leaves (which make a natural and most agreeable Canopy all the Summer) being gathered about the Fall, and somewhat before they are much frost-bitten, afford the best and easiest Mattresses in the World, to lay under Quilts, instead of Straw ; because, beside their Tenderness, and loose Lying together, they continue sweet for seven or eight Years long ; before which Time, Straw becomes musty and hard. They are thus used by divers Persons of Quality in *Dauphiny* and *Switzerland*, and are lain on with great Refreshment ; so as, of this Tree, it may properly be said,
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The Wood's a House, the Leaves a Bed :

Being pruned, it heals the Scar immediately, and is not apt to put forth so soon again, as other Trees.

The stagnant Water in the hollow Trees cures the most obstinate Tetters, Scabs, and Scurfs in Man or Beast, fomenting the Part with it; and the Leaves, chewed, are wholesome for the Gums and Teeth. Swine may be driven to Mast, about the End of *August*.

Mr. Lawson's Account of Beech. Beech, he says, in *America*, is common, and large, and has a Grain just like that in *Europe*. The chief Use of this Tree is Fire-wood, because it is not a durable Wood. It produces a sweet Mast; but the Pork, that is fed on it, notwithstanding its Sweetness, is very oily, and should be hardened with *Indian Corn*, before it is killed. He says, there is another Sort, called Buck-beech; and now follows my Account of Beech.

That there is but one Sort of Beech. As to the Sorts of Beech, I am sensible, that some Authors have concluded there are two; the one a Mountain, the other a Vale Beech, distinguished by their white and black Colour: But, for the following Reasons, I cannot help being of Opinion, that there is but one Sort in all; for though there be both black and white-rind Beeches, yet the Insides of both are the same in Colour, and in Service. Of two Beeches that grew close to one another, the one had a black Rind, and the other a white; that which was the small underling Beech, and shaded by the tall one, was blackish, when the other, that grew faster and taller, was white. It is observed, that those Beeches, which grow on chalky Soils, are commonly white-skinn'd; and why others are so too, that grow in other Soils on Mountains, may be caused by

the whitening Quality of such thin Air that constantly attends those high Situations. But this is further demonstrable by what may be seen in that noble large Park of *Ashbridge*, just by my House; where, I believe, the biggest and most Beeches grow, for the Quantity of Ground, of any other Place in *England*; and where may be seen, those that stand thick, and most shaded, are most blackened on their Rinds, while others, that stand clear in more Room, are white-rinded.

The Difference of Beech, as to the Soil it grows on.
There is some Difference of Beech, according to the Soil they grow on: Some that grow on swampy Ground, will take in so much Moisture at their Root, as to cause Abundance of Sap to arise in their Bodies, and, by this means, sometimes cause the Wood to be shaken and crack'd, as most were, that a Lath-render rended for Pales, in thirty Years Time, which grew on a swampy, red, clayey Bottom; but that Beech, which grew on a Gravel, or Chalk, he found always to prove sound. Beech, that grows on a chalky Soil, is better Wood than that which grows on Clays and Loams; and this, because, in Chalk, they grow slower, and therefore the Pores are closer, and the Wood heavier and better than that Beech that grows on Clays and wet Loams; for, in the latter, these Trees grow faster, their Pores are more open, and, by Consequence, the Wood lighter and less durable, contrary to the Oak, which, though it grows faster on Clays and Loams, than on Chalk, yet is it here closer, heavier, and more durable, as is constantly experienced by those Carpenters who work both Sorts, and who believe no Oak exceeds in Goodness that which grows on pure sound Clays, on a high Situation. Beeches affect to grow on poor chalky, rocky Sides of Hills, but, in better Ground, they grow much bigger.

The Profit of planting Beech-Trees. This Tree is the most profitable of all others to improve a chalky, barren, rocky, stony Ground, where its Roots will penetrate into the Joints and Cracks of such Earth to Admiration, especially on the Sides of steep chalky Hills, where no Wood will grow like it; and this not only in Standard Trees, but also in Hedges. In gravelly dry Loams, this Wood will also exceedingly prosper, if planted hedgeways. That which I planted in 1718, as mentioned in my first Part, I, this last Winter, 1741, cut down, and stocked up its Roots; notwithstanding it was the most flourishing Beechen Hedge in our Country: The Reason was, because a Gentleman and I exchanged a Field; his lay close to mine, and my Field nearer his House; by which Eradication I laid two small Fields into one, and now I can plow crossways, which, before, I was confined to plow always longways, by the Narrowness of the Inclosure, and by which I've gain'd a greater Opportunity than I had before of improving my Land. Experience shews that a level, richer Soil, than Chalk, will produce far larger Trees than that; yet, in any of the Beechen Soils, the Beech will grow faster than an Oak, if planted in the same; for, notwithstanding the Hardness and close Texture of its Wood, it will, where-ever it grows, outrun the Oak: And tho' the Oak sells, by the Foot, for as much more as the Beech, yet the great Quantity of Masse it bears, for feeding Deer, Swine, and Poultry, making Oil of it, and growing in those barren Places, where hardly any other Tree will, causes it, in some Degree, to be preferable to the Oak; and the more, now I have discovered a Way effectually to prevent the Breed of the Worm, who is the greatest Enemy to this Wood of all others.

A new Way to make Beech last long. Soak the Boards, or Planks, two or three Weeks in Water;

then put them up on End on a cross Bar in a Chimney, leaving Room for the Smoak to ascend between, and these Boards or Planks, in such a Position, will help to draw up the Smoak; let them remain here a Fortnight, for the Sap to be dried up, and the Smoak to enter in, which will make the Wood as black and hard as Brazil, so that no Worm will ever touch it, but will, by this means, last Hundreds of Years, if kept in a proper Place. Thus also young Beeches, that are of a Growth just big enough to make Axle-trees for Carts, Waggon, or Coaches, and which are better for these Purposes, than if they were cut out of a quarter'd Beech, will last a great deal longer for being thus first soaked, and then dried in a Chimney; and, after the same manner, Beech, in many Shapes, may be thus secured against the destructive Worm.—Or you may lay a Parcel of Beech-boards, or Planks, over a Fire, at a proper Height in the open Air, or other Place, and burn under them damp Straw, Saw-dust, or such-like Fuel, to cause a Pother, and yield a great deal of Smoak; which will penetrate the Wood, even in three or four Hours Time, and so lodge in it a smoaky Quality, as to preserve it from the Breed of the Worm the best of any thing; always observing first to soak them in Water, before the Fire is used, and turning such Boards, or Planks, now and then, as this Work is performing. Then, in case any of these Boards, or Planks, become warped while they stand in the Chimney, or over a Fire, they may be easily reduced, while they are hot, by laying some Weight on them, while they lie on an even Floor.

The Benefit of a smoaky Room to Beech. Hence I am led to observe, that, where a Floor is laid with Beechen Boards, and such Floor lies over a Room, whose Chimney often casts a Smoak into it, such Boards will last much longer than those that have not

not this smoaky Benefit ; because the Worm is here kept from Breeding, and, by Course, the Boards kept so dry as to last Scores of Years. This is the Reason, why a Chimney, or Mantle-piece, of Beech, which is commonly made use of for this Purpose, remains sound Time out of Mind ; for, as it is here always near the Fire, the Worm can never meddle with it ; therefore it will lie as long here in a sound Condition, as if it were always confined under Water, where it is said to remain firm five hundred Years : For it is laying this, and all other Woods, sometimes in a damp, and sometimes in a dry Place, that breeds the Worm, and ruins it in a few Years. Now, if any should ask, Why the following good Piece of Husbandry is not more made use of ? I answer, Because it is not known in common : Nor have I reason to believe, if it was, that they would try it presently ; because most new Inventions meet with many Difficulties and Oppositions, before they can get into a general Acceptance.

How a Beechen Ground-floor was made to last near (if not quite) as long as an Oaken one. There is a very remarkable Instance, at this Time, 1741, to be seen at *Tring* in *Hertfordshire*, three Miles from *Gaddestden*. About sixty Years ago, a Man, that got his Living by rending Laths and other Wood-work, built him a Cottage in this Town ; and, as Beech is commonly sold as cheap again as Oak, and having but little Money to lay out, was resolved to buy Beechen Boards for a Floor over a Cellar : But before he did this, he first soaked his Boards a Fortnight in Water, and afterwards put them on an Edge to stand on the wooden Cross-bar of a large Chimney, where he let them remain a Week for the Smoak to penetrate their Wood ; and then put others in their Room. Accordingly, they answered his Purpose ; for these Boards may be seen at this
Time

Time in *Tring*, where they were first laid, and are now in a sound Condition, though they lie over a Cellar, without any Cieling under them. They are, indeed, of a blackish Hue; but a Man may as well cut Brazil as them, for the Worm never bred in these Boards, which they would surely have done, and devoured them in twenty or thirty Years at most, had they not been thus served; but now they are likely to last as long as so many Oaken Boards. This Improvement, as I am the first Publisher of to the World, I hope I shall have the Satisfaction of hearing it made use of by many, to their great Advantage; for, at this Rate, they may save half in half of the Charge of Oak.

A very remarkable Example of many great Beeches, that rotted by ill Management. A Gentleman, about twenty-five Years ago, being desirous to enjoy a fine Visto before his House, caused many great Beeches to be felled, and others to have their large Arms cut off close to their Bodies; and, to prevent any Damage at the wounded Part, he made a plaistick Mixture of Oil, White-lead, and Lamb-black, which brought all into a bluish Colour; but this proved a wrong Proceeding; for when the Sap flowed to the Part so cut off, it wanted its usual Conduit, and being entirely stopped in by this Composition, the Sap was forced to disperse itself within Side, where, in a Few Years, it brought on a Rot, that increased every Year, till the Trees, by little and little, became so perished, as to be fit only for the Fire, and but very indifferent for that. This should be a Warning to all those Readers, who may be concerned in such an Affair, that they never lop any Arm off close to the Body of a Beech-Tree; for this Tree cannot bear Lopping so well as many others, because it disagrees with Knife and Axe more than all others. But when a necessitous Case requires it, be sure to lop such Trees a Foot,

at

at least, from the Body of the Tree, for then the Sap will be discharged at some Distance from the Tree's Body, and new Twigs, or Branches, will shoot out from about the wounded Part, that will employ a great deal of such Sap, and consequently prevent a great deal of this Damage. However, the Paint, I mentioned, is a very durable Sort for painting Rails, Pales, and other outside Work, because of the sulphureous Quality of the Lamb-black, that very potently resists the Wash of Waters.

To rend Pales out of Beech. For this Purpose, Beech must be very clear from Knots, Crooks, and Rottenness, and then such Pales will last twenty Years, in the naked Way, in the open Air; but, if painted, or soak'd and smoaked, much longer. The rending Part is Twelve-pence for a hundred of them, and a hundred Rails, or Pales, will do two Poles Length of Pailing; and are, in Cheapness and Service, compared with Boards of the same, or other Wood, as Six-pence is to Two Shillings and Six-pence; an Article worth observing: But this is calculated to our *Gaddeſden* Price.

The Age of Beech. This Tree is reckoned in its Prime at sixty Years old; and though it may stand two hundred, or more, and increase in Bulk to a great Magnitude, yet the Inside will begin to decay from that Time. There is a Beechen hollow Tree at this Time stands between *Berkhamstead* and *Tring*, that is above four Fathoms round its Body, and seven or eight Feet to its first Bough: It was measured a few Years since, and found to grow but one Inch in one Year, in its Circumference, though, at the same time, hollow in its Inside. A Gentleman's Wood, that contained vast Numbers of large Beeches, besides Oaks, was judged to yield as much Money sixty Years ago, as they would at this Time, by reason they were, then, in rather a
founder

founder Condition, than they are now; for this Gentleman lets many of them get hollow, before he fells them; for he is one of those that love Wood, to a fault, contrary to the general Practice of Mankind, who cut it down before it is arrived to its Maturity, and thus suffer a prodigious Loss; for it is allowed that a Tree, at twenty Years of Age, grows faster in one Year than it did in its first ten.

A Horse-shoe found in the Body of a Beech. This was a great Tree, that stood in a Place called *Thunder-Dell*, in *Pistone-wood*, in the Duke of *Leeds's* Lordship that was. In the Body of this Beech, as it was sawing, there was discovered a Horse-shoe near the bottom Part of it, which, they conjectured, was left by the Tree's Side, while it was in its Infancy; and as the Tree increased in Bulk, the Wood grew about the Horse-shoe, and thus was wholly enveloped in its Body.

The Size of a Beechen Tree for Boards, Is one of ten, twelve, or fourteen Inches thick; and why this is best, is, because a broader Board is apt to warp; but these narrower Sorts, if crooked, may be easily made straight, by laying them on the Ground with a Weight on each Board, when a broader will not.

How Beech was sold for Walnut-Tree. A young Man, who had served an Apprenticeship to a Cane-chair-maker in *London*, at the Expiration of his Time, came to *Northchurch* in *Hertfordshire*, to pay a Visit to a Relation there. Now, in this Time it happened, that Part of *Northchurch* River was cleansed, when they found six Beechen Planks, which had lain therein twenty three Years, by an Accident; for, at first, there were several more, besides these, thrown into the River at different Places, where the Water was deepest (for this is but a very shallow River at any time) and here they were to lie and soak, till the Sap was washed out: But when they came to take up all the Planks, they found

found all but six ; for which Reason, they concluded they were stolen ; and thus they came to remain here so long, till the Mud and Water had blackened the Wood. However, when they were discovered, this young Man cut into one of them, and told his Friend they were Walnut-tree, but he was answered, they were Beech. On this, he bought them, and sent them to *London* for making Frames of Chairs ; for so alike was the Grain of this Beech to Walnut-tree, that those very Planks deceived several of the Trade, who bought some of them as such ; and which they were the rather induced to believe, seeing the dark Cast of the Wood, as well as its Grain, seemed, to them, just like Walnut-tree. — How easily, then, may an ignorant Buyer be imposed on ! For, if a Person could bear Stock some Time, by letting Beechen Planks lie a considerable Time in such a watery Situation, he may, with Assurance (if he is Knave enough) sell Beech for Walnut-tree.

The Damage of planting Beech, and other Trees, too near a Neighbour's Ground. Among the *Roman* Laws, it was provided, that the smallest Tree that was, should not be planted nearer, than five Feet, to the Confines of a Neighbour's Ground ; nor any Tree too near their Aqueducts, lest its Roots got in between their Stones, and displace them ; nor that the Sides of Rivers be planted with Trees, for Fear they hinder its Navigation, or become a Nuisance, by their Leaves corrupting the Water. The same Laws also prohibited Planting Trees close the Highways, that Travellers should not be annoyed, nor the Roads damaged, by their Shade and Drip ; and, likewise, that no Tree should be suffered to grow so near Houses, as that their Roots might endanger their Foundation ; and I hope, in Time, such Laws will be put in Force with us ; for it is too common a Piece of Avarice to plant Trees in Hedge-rows,

or otherwise, within even, sometimes, eighteen Inches of a Neighbour's narrow Piece of Corn-ground ; which so damages a little Field of an Acre or two, that the Owner has seldom more than half a Crop of Grain off it, by Means of their extensive Roots, that, in the Ash, and Beech especially, are thought, sometimes, to spread near as far, as the Tree is high ; and which feed and devour the Quintessence of that Manure, which a poor Tenant, perhaps, has borrowed the Money to buy, as I have known done, to nourish the Growth of his Crop of Corn : And, to compleat the Misfortune, the large spreading Heads of many Oaks, Ashes, Beeches, &c. hang over good Part of such a little Piece of Ground, and help to destroy his Crop, by their too great Shade and Drip. Is not this abominable Wickedness ? And, if Restitution, as Divines say, for Damage done, is required by all, that are able to do it, on Pain of Damnation ; how can any Man, that does his Neighbour this constant, wilful Damage, think himself guiltless ? Yet is this very commonly done, and, most of all, by those that are of the rich Sort, who think themselves too great to be detected, and yet would take it very ill, if any should say, they were not honest Men : Nay, so covetous are some, that they will let their Trees grow so long, and so far into another's Ground, that there must be a Jury to decide, how much of the Tree belongs to one and the other. Others, again, will suffer their Trees to hang over another Man's Hedge, and, by their Drip, kill Part, or all, of such a Hedge ; and yet, if they can catch a poor Man's Sheep, or other Beast, that happens to break through such Hedge into his Ground, then Pounding is the Word, and make the Owner pay a Damage, with the Threat of a greater Mulct, if it comes there again. Oh ! What could I say on this Subject ? But I must confine my Pen, and shall only

only observe, that this monstrous Damage is easily perceived, with an aking Heart, by such Tenant, and ought to be the detestable Sight of all other Beholders; which is well taken Notice of by a late ingenious Author, who says: — That a Tree of any Sort will spoil Corn all round it in a large Circle; half an Acre of Turnips has been ruined at a Time, by only one Tree; from whence it is plain, that Trees rob, as Weeds; because it is not by their Shadow, as he says, there being as much Damage done by them on the South Side, where their Shadow never comes, as on the North Side: Nor can it be so much by their Dropping, for it is the same on the Side, where a Tree has no Boughs to drop over the Plants; when they are also at a very great Distance from all Parts of the Tree, except its Roots.

Beech, its Duration. The Worm takes the Beechen Bedstead sooner than any other Wood, and then the Bug commonly succeeds, by making his Nest in the Worm-holes. It is also wrong for any Person to buy Beechen Cane-chairs, because the Cane will last a great while longer, than this Wood. However, if a Beech-tree is felled about *Midsummer*, the Wood of it will last three Times longer, than that felled in Winter. *Beech in Summer, and Oak in Winter*; is now become a common Saying. But of the Felling Beech in Summer I have largely wrote, in my First Book, and there made known, how this beneficial Way was first found out at *Frithefsden*, in *Hertfordshire*, about two Miles from *Little Gaddesden*.

The Benefit of a large Beech-Tree to the Turner, &c. In the Winter 1740, there was a very large Beech felled in *Ashbridge Park*, occasioned by the Loss of one or more of its Arms, which were broke by the Violence of the Winds, as it happened by the same Storm to one of my biggest Oak Trees; which tore down one of its greatest Arms, and

which so rended the Oak's Body, that, if I had not felled it, the Water would have lodged, and spoiled it in Time. This Beech, whose Roots grew in a deep red Clay, over a chalky Bottom, proved very sound, and, being of great Bulk, was sold to a Turner at *Barkamstead*, three Miles from my House, for Cutting out long hollow Trays for Butchers, Turning out very wide Bowls, and many other large Utensils to great Perfection; because this Tree, by its bulky Body, admitted of being quartered, by which the best of Turners-Ware could be made, that sells for much more than what we call Fritch-Ware, or that which is turned out of the intire round Part of the Tree, and then they commonly soon crack, if but admitted to stand a little in the Sun or Air; and indeed too often, though kept altogether in the House, to the Deceiving of the Buyer, who for want of Judgment, is obliged to take the Word of the Seller, and run the Risque of having one for the other. This Tree's Body contained in it many Feet of Timber, and run very clear for a great Way, and so thick, that fifteen Feet of Timber were contained in one Foot's Length of it, which made it sell for Nine-pence a Foot, when that, of only a Foot or eighteen Inches Diameter, sold for no more than Six-pence. Beech of late, has been much more used than formerly for Axle-Trees, Wheels, and other Utensils, for, where these are almost in constant Use on the Road, it out-does Oak, Elm, or Ash.

Of Beech Mast. A Gentleman in *Shropshire*, desirous to raise a ten Acre Plantation of Beech in that Country, in 1741, being a plentiful Year of Mast, endeavoured to get a sufficient Quantity of it out of our Country, because we have many Beechen Woods in the Western Parts of *Hertfordshire*, besides great Numbers of Trees growing in
Hedges.

Hedges, and in inclosed Fields. The Gentleman was asked by some of the poorer Sort of People at *Gaddeſden*, ten Shillings a Buſhel for gathering and ſelling him the naked Seed, clear of their Shell or Huſk; for, though we abound in ſuch Plenty of theſe Trees, every Farmer is jealous of his Maſte, and accordingly endeavours to preſerve it for feeding his Swine and Poultry, who ſometimes get half, or wholly fat by it; and then with giving them a few Peaſe or Beans to take off the oily Taſte of the Maſte, and harden their Fleſh, we kill them to great Advantage: Or if they have a due Quantity of Barley-meal, or Pollard, given them afterwards, it will ſoon puff them up, and make them delicate ſweet Porkers or Baconers. And ſo careful are we at *Gaddeſden*, to enjoy the Benefit of this Beech Maſte that drops off the many large Trees on our Green, or Common, that we yearly preſent, at our Copyhold-Court, a Penal Law againſt thoſe who gather any Maſte, or its Shells, before *Lady-day*. This Maſte commonly begins to fall at *Michaelmas*, and then many drive their Turkies, as well as Hogs, to the Places of its Fall, where they get fat by only this Food; and are ſometimes killed for the Spit, without having any other Meat given them.

C H A P. IV.

Of the E L M.

E L M *deſcribed. Divers Sorts. Their Bulk. How to raiſe them.* This Tree bears its Seed in ſingle Teguments or Coverings, that are membranaceous, with ſollaceous Huſks, whoſe Leaves are rough and indented, and have a rugged-Bark. Of this, Mr. *Evelyn* ſays, there are four or five
Sorts;

Sorts; and, from the Difference of the Soil and Air, divers spurious: But two only are most worthy our Culture, the Vulgar, *viz.* the Mountain Elm, whose Leaves are thicker and more florid; and the Glaborous, or bare smooth, delighting in the lower and moister Grounds, where they will sometimes rise to above an hundred Feet in Height, and a prodigious Growth, in less than an Age. Though both these are raised from Suckers, yet this latter comes well from the Seeds; therefore it is thought to be the ancient *Attinea*, for such an Elm they acknowledge to be raised from Seeds; which being ripe about the Beginning of *March* (though frequently not till the following Month) will produce them: Let it be tried in Season, by turning and taking some fine Earth, often refreshed under some ample spreading Tree; or to raise them of their Seeds (being well dried a Day or two before) sprinkled in Beds prepared of good loamy fresh Earth, and sifting some of the finest Mould thinly over them, and watering them when Need requires. Being risen (which may be within four or five Months) an Inch above Ground (refreshed and preserved from the scraping of Birds and Poultry) comfort the small tender Seedling by a second Sifting of more fine Earth to establish them; thus keep them clean weeded for the first two Years, and cleansing the Side-boughs: Or, till being of fitting Stature to remove into a Nursery at wider Intervals, and even Rows, you may thin and transplant them in the same Manner as you were directed for young Oaks; only they shall not need above one Cutting, where they will grow less regular and hopeful. But, because this is something troublesome, it is advised that Suckers should rather be planted about the End of *October*, when they will grow very well, as they will also from the Stumps a great while. Stakes, sharpened at the
the

the Ends for other Purposes, take Root familiarly in moist Grounds, and become Trees. Truncheons of the Boughs, and Arms about a Yard or Ell long, chopped on each Side opposite, and laid into Trenches half a Foot deep, and covered about two or three Fingers with good Mould, yield abundantly. The Season for this Work is about the End of *January*, or early in *February*, if the Frosts impede not; and, after the first Year, you may cut and saw the Truncheons off in as many Places as you find Cause, and as the Shoots and rooted Sprouts will direct you, for Transplantation.

Divers Ways for propagating Elms. Transplanting of Elms. Besides the former Way of propagating Elms, let Trenches be sunk twenty or thirty Yards from such Trees as stand in Hedge-rows, and in such Order as you desire your Elms should grow: Where these Gutters are, many young Elms will spring from the small Roots of the adjoining Trees. Divide, after one Year, the Shoots from their Mother Roots with a sharp Spade: These, transplanted, will prove good Trees, without Damage to their Progenitors: Or lop a young Elm, the Lop being about three Years Growth; do it in the latter End of *March*, when the Sap begins to creep up into the Boughs, and the Buds ready to break into Lengths of four Feet slanting, leaving the Knot where the Bud seems to put forth in the Middle; inter these in Trenches of three or four Inches deep, and in good Mould well trodden, and they will infallibly produce you a Crop; for even the smallest Suckers of Elms will grow (being set) when the Sap is newly stirring in them. There is yet a fourth Way no less expeditious: Bare some of the Master-roots of a vigorous Tree, within a Foot of the Trunk, and with your Axe make several Chops, putting a small Stone^b into every

every Cleft, to hinder their Closure, and give Access to the Wet; then cover them three or four Inches thick with Earth, and thus one single Elm, well ordered, will make a fair Nursery, which, after two or three Years, you may separate and plant in the *Ulmarium*, or Place designed for them; and which, if it be in Plumps within ten or twelve Feet of each other, or in Hedge-rows, it will be the better: For the Elm is a Tree of Consort, sociable, and so affecting to grow in Company, that the very best do almost touch one another. This also protects them from the Winds, and causes them to shoot of an extraordinary Height, so as, in a little more than forty Years, they arrive to a Load of Timber, provided they be carefully cultivated, and the Soil propitious: For an Elm does not thrive so fast in the Forest, as where it may enjoy Scope for the Roots to dilate and spread at the Side of the Hedge-rows and Avenues, where they have the Air likewise free. *Note*, That they do properly by Layers also. Of all the Trees in our Woods, none better suffers a Transplantation than the Elm; for you may remove a Tree of twenty Years Growth, with undoubted Success.

More of Transplanting of Elm, how. Walks in Spain. What Lands please the Elm, Elms least hurtful to Corn and Pasture. An Elm has been transplanted almost as big as a Man's Waist; but it was disbranched, all but the Summit, which was intire: And it was taken up with as much Earth as could be, and refreshed with Abundance of Water. This is an excellent and expeditious Way for great Persons to plant the Accesses of their Houses with; for, being disposed at sixteen or eighteen Feet Interval, they will in a few Years bear goodly Heads, and thrive to Admiration. Some emplaister the wounded Head of such over-grown Elms,

Elms, with a Mixture of Clay and Horse-dung, round about with a Wisp of Hay, or fine Moss, which may do well if well temper'd, so as the Vermin nestle not in it. But for more ordinary Plantations, younger Trees, which have their Bark smooth and tender, clear of Wens and tuberos Bunches (for those of that Sort seldom come to be stately Trees) about the Scantling of their Leg, and their Heads trim'd at five or six Feet Height, are to be preferred before all other; but Experience tells us, you can hardly plant an Elm too big.—But do not pare the Roots within two Fingers of their Stem, cutting off the Head, nor strew Oats in the Pit, as some do.—The incomparable Walks and Vista's, belonging to the King and Grandees of *Spain*, are reported to be Elms brought from *England*, by Order of *Philip* the Second, before which, it did not appear, there were any of these Trees in all *Spain*. At the Escorial, double Rows of them are planted in many Places for a League together in Length, and some of them forty Yards high, which are kept stripp'd up to the very top Branch, which must needs render a most glorious and agreeable Sight; no Tree whatsoever becoming long Walks and Avenues, comparably with this majestic Plant. The Elm delights in a sound, sweet, and fertile Land, something more inclin'd to loamy Moisture, and where good Pasture is produced; though it will also prosper in the gravelly, provided there be a competent Depth of Mould, and it be refreshed with Springs: In Defect of which, being planted on the very Surface of the Ground, (the Swarth being first pared away, and the Earth stirred a Foot deep, or more) they will undoubtedly succeed; but, in this Trial, let the Roots be handsomely spread, and covered a Foot, or more, in Height, and above, all firmly flaked. This is practicable also for other Trees, where the

Soil is over moist, or unkind : For as the Elm does not thrive in too dry, sandy, or hot Grounds, no more will it abide the cold and spongy ; but in Places that are competently fertile, or a little elevated from these Annoyances, as we see in the Mounds and Casting up of Ditches, upon whose Banks, the Female Sort does more naturally delight. The Elm is, by reason of its Aspiring and Growth (unless it be topped to enlarge the Branches, and make them spread low) the least offensive to Corn and Pasture Grounds : To both which, and the Cattle, they afford a benign Shade, Defence, and agreeable Ornament.

How to plant Elms. French Elms. Grafting of Elms. Felling of Elms. Use of Elms. An Elm should be planted as shallow as might be, for deep Interring of Roots is a great Mistake. Let new planted Elms be kept moist by frequent Refreshings, upon some half-rotten Fern, and Litter laid about the Foot of the Stem, the Earth a little stirred and depressed, for the better Reception and Retention of the Water. Above all, the Plantation must be carefully preserved from Cattle, and the Concussions of impetuous Winds, till they are out of the Reach of one, and sturdy enough to encounter the other. When you lop the Side-Boughs of an Elm, be careful to indulge the Tops, for they protect the Body of your Trees from the Wet, which always invades those Parts first, and will in Time perish them to the Heart ; so as Elms beginning to decay, are not long prosperous. This Lopping may be done about *January* for the Fire ; and more frequently, if you desire to have them tall ; or that you would form them into Hedges, for so they may be kept plaish'd and thicken'd to the highest Twig, affording both a magnificent and august Defence against the Winds and Sun. There is a Cluster of eight *French Elm* in the little Garden near the Chapel

Chapel at *Somerſet-Hauſe*, that will perfectly direct to the incomparable Uſe of this noble Tree, for Shade and Delight, into whatſoever Figure you will accuſtom them. Elms have been graſſed to the great Improvement of their Heads. *Virgil* tells us, they will join in Marriage with the Oak, eſpecially for ſuch ligneous Kinds, if you graſſ under the Earth, upon or near the very Root itſelf, which is likely to entertain the Cion better, than when more expoſed, till it be well fixed, and have made ſome conſiderable Progreſs. When you ſell, let the Sap be perfectly in Repoſe; as it is commonly about *November* or *December*, after the Froſt has well nipp'd them. And, I am told, that Oak and Elm, ſo cut, the very Sapling (whereof Raſters, Spars, &c. are made) will continue as long as the very Heart of the Tree, without Decay. In this Work cut your Kerf near to the Ground; but have a Care that it ſuffer not in the Fall, and be ruined with its own Weight. This depends upon your Woodmonger's Judgment in Diſbranching, and is a neceſſary Caution in the Felling of all other Timber-trees. If any begin to doat, pick out ſuch for the Axe. And rather truſt to its Succeſſor. Elm is a Timber of moſt ſingular Uſe, eſpecially where it may lay continually dry and wet, in Extremes; therefore proper for Water-works, Mills, the Ladles and Soles of the Wheel, Pipes, Pumps, Aqueducts, Pales, Ship-planks beneath the Water-Line, &c.

Elm like Ebony. Other Uſes of Elm. Some Elm, that has been found buried in Bogs, has turned like the moſt poliſhed and hardeſt Ebony, only diſcerned by the Grain: Alſo, for Wheel-wrights Handles for the ſingle-hand Saw, the knotty for Naves, and Hubs, the ſtraight and ſmooth for Axle-trees, and the very Roots for curiouſly dappled Works; ſcarce has any ſuperior for Curbs of

Coppers, Featheredge and Weather-Boards (but it does not, without Difficulty, admit the Nail without Boring) Chopping-blocks, Blocks for the Hat-maker, Trunks, Boxes to be covered with Leather, and Coffins; for Dressers, and Shovel-Board-Tables of great Length, and a lustrous Colour, if rightly season'd; also for the Carver, by Reason of the Tenour of the Grain, and Toughness, which fits it for all those curious Works of Frutages, Foliage, Shields, Statues, and most of the Ornaments appertaining to the Orders of Architecture, and for not being much subject to Warping. Of old, they used it for Hinges and Hooks of Doors; but then that Part of the Plank, which grew toward the Top of the Tree, was, in Work, to be always reversed; and because it is not so subject to rift. *Vitruvius* commends it for Tenons and Mortises: But beside these, and sundry other Employments, it makes all the second Sort of Charcoal; and finally, the Use of the very Leaves of this Tree, especially of the Female, is not to be despised, for being suffered to dry in the Sun upon the Branches, and the Spray stripp'd off about the Decrease in *August* (as also where the Suckers and Stolons are supernumerary; and hinder the Thriving of their Nurses) they will prove a great Relief to Cattle in Winter, and scorching Summers, when Hay and Fodder is dear; they will eat them before Oats, and thrive exceedingly well with them; remember only to lay your Boughs up in some dry and sweet Corner of your Barn: It was for this the Poet prais'd them, and the Epithet was as advised:

Fruitful in Leaves the Elm.

In some Parts of *Herefordshire*, they gather them in Sacks for their Swine and other Cattle, according

ing to this Husbandry. But 'tis said, that their blooming Seeds make Bees obnoxious to the Lark, at their first going abroad in the Spring, which indangers whole Stocks, if a Remedy be not timely adhibited; therefore, 'tis said, in great Elm Countries, they don't thrive: The Truth of which is to be enquired into. The green Leaf of the Elm, contused, heals a green Wound or Cut; and, boiled with the Bark, consolidates fractured Bones. All the Parts of this Tree are absterfive, and therefore sovereign for the consolidating Wounds, and asswage the Pains of the Gout. But the Bark decocted in common Water, to almost the Consistence of a Syrup, adding a third Part of *Aqua Vita*, is a most admirable Remedy for the Sciatica or Hipgout, the Place being well rubb'd and chafed by the Fire. A Decoction of the inward Part thereof has also been much used in Gargarisms, or Mouthwaters, &c.

Inward Bark of the Elm. How to plant Elm with Quick-set. Hollowness of Elm. Elms for Water-works. Grafting of Elms. Furthermore, a Decoction of the Elm is an admirable sudorific and diuretic Medicine. When Quick-set is planted, it is advised to plant an Elm every twenty or thirty Feet; and, if in planting Elms at competent Spaces, and in Rows, you open a Ring of Ground at about eighty Feet from the Stem, and prick in Quick-set Plants, you may, after a While, keep them clipp'd at what Height you please, and so preserve them from outward Annoyances. Elms are apt to be hollow, which are commonly caused by ignorant or careless Lopping, whereby the Wet falls perpendicularly upon a Part, especially the Head: In this Case, if there be sufficient sound Wood, cut it to the Quick, and close to the Body, and cap the hollow Part with a Tar-paulin, or fill it with good stiff Loam, Horfe-dung,

dung, and some Hay mingled. Old broken Boughs, if very great, are to be cut off at some Distance from the Body; but the smaller, close. The Oak will suffer itself to be made a Pollard, that is, to have its Head quite cut off; but the Elm, so treated, will perish to the Foot, and certainly become hollow at last, if it escape with life. In the Mannor of *Horton*, in the Parish of *Ebbisbam* in *Surry*, there were lately Elms in good Numbers, which did bear almost three Feet square, and more than forty Feet in Height. They grew in a moist Gravel and in the Hedge-rows: They affect gravelly and gritty, especially if mix'd with Loam. For Pumps and Water-pipes, I find none like the Elm. A fair Advance for speedy Growth, and noble Trees (especially for Walks and Avenues) may be assuredly expected from the Graffing of young Elms with the best of their Kinds; and, where the goodliest of these are growing, the Ground should be plowed, and finely raked, in the Season when the Scales fall off, that, the Showers and Dews fastening the Seed where the Wind drives it, it may take Root, and hasten (as it will) to a sudden Tree; especially if seasonable Shreading be applied, which has sometimes made them arrive to the Height of twelve Feet by the first three Years, after which they grow again. And if such were planted, near to one another, it is almost incredible, what a Paling they would be to our most exposed Plantations, mounting up their wooden Walls to the Clouds. And indeed, the Shelving, and natural Declivity of the Ground, more or less, to our unkind Aspects, and bleak Winds, does best direct to the thickening of these Protections; and the Benefit of that soon appears, and recompenses our Industry in the Smoothness and Integrity of the Plantations so defended. Therefore it is to be wish'd, that the Lands of

our Country Gentlemen were incircled with stately Elms in Rows, &c. Such as are at *Newball* in *Essex*; near *Tarmouth*, at *Barnes*; near *London*, by the Marquis of *Worcester*, the Earl of *Essex*, the Earl of *Arlington* at *Euston*, the Earl of *Clarendon* at *Cornbury*, the Duke of *Leeds* at *Wimbledon*; and above all, King *Charles* the Second, in the Parks of *Greenwich*, *St. James's*, *Hyde-Park*, *Hampton-Court*, and *Windsor*. Dr. *Plot* tells us of an Elm, at the Spurs, next the Ground, at least six Yards Diameter, and of another great old Elm growing in *Magdalen-College* Grove, disbarked quite round, at most Places two Feet, at some at least a Yard, or four Feet from the Ground; which yet, for these many Years past, has flourished as well as any Tree in the Grove: Thus Mr. *Evelyn*.

Mr. Lawson's Account of Elm in Carolina. There are two Sorts of Elm, he says; the first grows on high Land, and is near to the *English*. The *Indians* beat the Bark to Pulp, then dry it in a Chimney till it becomes reddish, and this serves them to cure green Wounds, being of a very glutinous Nature. The other Elm grows on low Ground, and, with its Bark, both *English* and *Indians* make Ropes; and for this Purpose they peel the Bark in *March*, when the Sap begins to rise, or rather circulate. Now mine.

The Difference of Elm. The Elm that grows on *Little Gaddesden-Hill*, in *Hertfordshire*, is so short and tender, that it is fit for little else than Boards, notwithstanding it grows on a red Clay; and yet at about three Miles Distance, at *Great Gaddesden*, on a red Clay, there grows excellent tough Elm, fit for Stocks of Wheels, and many other serviceable Uses. Now the Reason for this Difference is allowed to be this: At *Little Gaddesden*,

desden, our red Clay has a Mixture of Sand ; but that, at *Great Gaddesden*, is a pure red Clay. The Elm likewise answers the same Goodness at *Ivinghoe*, *Petstone*, *Cbedington*, and many other Places in *Bucks*, where their Soil is a bluish Clay, in which the toughest of Elm grows to vast Bulks, when a full Age is allowed them. By which it appears, that the Sand, that thus shortens the Clay, causes also the same Quality in this Wood. And this ought to be a Warning, and serve as an Item to those Buyers of Elm, who are to use it in the Wheeler's Business, and in some other Trades, that they endeavour to know what Soil the Elm grew on; for, according to the Soil, so will the Wood prove; because when Elm has not knit well, and you make Stocks of Wheels of it, it will crack, though you pitch them over ever so well, and then the Wheels are spoiled. A Wheeler made several Pair of Wheels with our *Gaddesden* Elm, who was ignorant of its Nature, and, about five Years End, they were forced to be laid aside, by Reason their Stocks crack'd and loosened their Spokes. Whereas, had the Elm come off any of the blackish, bluish, whitish, or red Clays, or springy Gravels, the same Wheels might have lasted twenty Years, or more. I have at this Time a Cart-Wheel, that, I am told, is between thirty and forty Years old, now in actual Use on my Cart, which happened into my Possession by Accident, and which was made with right knotty hard Elm, whose Grain run so, that it was very hard to cut or chop it asunder. But that Elm which grows on a hurlucky, chalky, stony, sandy, or sharp, dry, gravelly Bottom, is seldom fit for the Wheeler's Use. However, Elm, in general, makes the strongest and most durable hollow Ware; because it will not crack like Beech,

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and some of others: But it has this Fault, it is apt to give an ill Taste to the Liquor.

How an Elm was damaged by the Loss of an Arm.
 Elm is in its Prime at sixty Years old; yet many be intirely sound at 100. An Elm felled on *Gad-desden-Green*, in 1740, contained 120 square Feet of Timber in its Body, and was sold for fifteen Pence a Foot. to the Carpenter, as it stood erect, at all Hazards: But it had like to prove a dear Bargain to him, for, when it was felled, there was discovered a Wound that had been made, by one of its great Arms having been blown off about twenty Years before, close to its Body, which had let in so much Water at Times, that rotted great Part of it to that Degree, that it became like Touch-wood. Yet this Wound, in Time, healed up and skinned over, which made the Part look sound as the Tree stood. However, this Damage did not altogether happen by the Water that got into the fractured Part; but according to the Judgment of several skilful Persons, it was mostly occasioned by the Revulsion of the Sap, which ascended to feed that Arm, though its usual Veins, Arteries, or Sap-Vessels, and which, for Want of, to expend and consume such Sap, it flowed about the Inside of the Part, and, by Degrees, rotted so much of its Body, as made the Gentleman-Owner, to allow an Abatement of thirty Shillings out of his meer Generosity. This Tree had been transplanted to this Place, at near twenty Years Growth, and remained here about eighty afterwards, was intirely sound from the Bottom to a 'good Height, 'till the decayed Part commenced, and so again above the decayed Part, to its Top or End: In short, had it not been for this Accident, it had been all a firm Piece of Timber, from one End to the other; because it was planted very high at first, and grew on a hazel Surface of Mould, of eighteen Inches deep, and

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under that a red Clay. This Tree grew within half a Mile of my House; and of this Accident I was an Eye-witness; for it lay on the Ground several Weeks after Felling, and both damaged and sound Parts exposed to Spectators. Elms often blow down, because he roots narrow, and has seldom more than one Tap-root.

The Wheelers Way of securing Elm from the Damage of Weather. All Wheelers, in general, are so much interested in securing the Stocks of their Wheels, that they take a great deal of Care about the same; because on it depends in the Security of all the rest of the Wheel. Now, to keep the Stock from crackings, when the Spokes are driving in, and make it resist all Weather afterwards for many Years, the Wheeler fastens a Gudgeon, or little Piece of Wood, a little longer and bigger than a Man's Finger, in the Center of each End of the Stock; and then with a Pair of Pot-hooks, he turns it leisurely about and roasts it, as it were, over a gentle Flame of Furz, Fern, or Shavings, for twenty or thirty Minutes, by which the Wood is smoaked well, shrivelled closer, made harder, and able to resist all Weather, for many Years. And for a further Assistance, after the Wheel is compleatly made, he rubs, over the whole Stock, melted Pitch.

C H A P. V.

Of the B A Y-T R E E.

THE Bay-tree described. How increased. Where it thrives best. Large Trees. What good for. Use of Berries, and Leaves. The Bay-tree is an European Ever-green, considerable for its Berries, which are black, whose Leaves are short, odorate, of a deep Green, each Berry containing two Seeds.

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John Evelyn, Esq; in his *Sylva*, or *Discourse of Forest-trees*, tells us, they are increased, both of their Suckers, Seeds, and Berries, which should be dropping ripe before gathered. *Pliny's* Process was, the gathering the Berries in *January*, spreading them till their Sweat be over, then putting them in Dung, and sowing them. To steep them in Water is as well as Wine. Some wash the Seeds from their Mucilage, by breaking and bruising the glutinous Berries; then sow them in *March*, by Scores in a Heap, and so they will come up in Clusters, but not so fit for Transplantation, as where they are interred as you would furrow Pease. This Way, and setting them a-part, which *Mr. Evelyn* most commends, he hath raised Multitudes, and that in their Berries, without any further Propagation; only, for the first two Years, they would be defended from the piercing Winds, which frequently destroy them; and yet the Scorching of their tender Leaves ought not to make you despair, for many of them will recover beyond Expectation. This aromatic Tree greatly loves the Shade, yet thrives best in our hottest Gravel, having once passed those first Difficulties. Age and Culture, about its Roots, wonderfully augment its Growth; by which there have been seen Trees of them near thirty Feet high, and almost two Feet Diameter. They are fit also both for Arbour and Palisade-work; for the Gardener understands when to prune and keep it from growing too woody. The Berries are emollient; sovereign in Affection of the Nerves, Colics, Gargarisms, Baths, Salves, Perfumes; and some have used the Leaves instead of Cloves. It is a common Thing with Nurses to help the Children of the Gripes, to boil Bay-leaves in their Food; and they adorn our Houses at *Christmas*. The Kernels of these Berries are very like Wheat; and when it has been thought that it has rained Wheat; it has been believed to be nothing but these Berries dropped

ped from these Trees. Of late Years Abundance of these Trees have been raised and kept in Boxes and Pots, with curious round Heads, and single Stems of four, five, or six Feet high, or more, and brought us over from *Flanders* and *Holland*; the great Use of which has encouraged us to raise them here. Several of these Trees were killed about *Gaddeſden*, by the severe Frost of 1739; as it did many other Vegetables that were not able to withstand the Violence of our high, cloggy, cold Situation, which used to be called, *The Alps of Hertfordshire*, by the late Dr. *Brabin*. The common Sort doth well enough in the Ground, if it be but covered any Ways from too long continuing Frost and cutting Winds; and, when it is frozen, it will shoot out again, if cut down to the Ground; but, if it be not cut, it will die. Some think, this may be grafted on the Service and the Ash.

C H A P. VI.

Of the MAPLE.

THE *Maple described. Its Propagation and Use.*
Pliny's Account of it. This is a Tree bearing its Seed in single Teguments or Coverings, that are membraneous, and alate Seed-vessels or Keys; being double, and having small Leaves, divided into five Segments, and it is a brittle Wood. This Maple, of which Authors reckon very many Kinds, was of old held in equal Estimation almost with the Citron; especially the *Bruscum*, the *French Maple*, and the *Peacock's-tail Maple*, which is that Sort so elegantly undulated and crisped into Variety of Curls. And it is to be wished, we had growing here the *German Acer*, and that of *Virginia*, an excellent Tree. They are all produced of the Keys, the Ash (after a Year's Interment) and, like to it,

it, affect a sound and dry Mould, growing both in Woods and Hedge-rows, especially in the Latter, which, if rather hilly than low, afford the fairest Timber. It is also propagated by Layers and Suckers. By shredding up the Boughs to a Head, it will shoot to a wonderful Height in a little Time; but, if you will lop it for the Fire, do it in *January*; keep no Pollards or spreading Trees, for a clammy Dew falls from them that hurts what grows under. The Timber is far superior to Beech for all Uses of the Turner, who seeks it for Dishes, Cups, Trays, Trenchers, &c. As the Joiner, for Tables, Inlayings, and for the Delicateness of the Grain, when the Knur and Nodosities are rarely diaper'd, which does much advance its Price. Also, for the Lightness under the Name *Acer*, employed often by those who make musical Instruments. There is a large Sort, which we call the Sycamore. But the Description of the lesser Maple, and the ancient Value of it, is worth the Citing: The Maple (says *Pliny*) for the Elegancy and Fineness of the Wood, is next to the very Cedar itself; there are several Kinds of it, especially the White, which is wonderfully beautiful: This is called the *French Maple*, and grows in that Part of *Italy* that is on the other Side the *Po* beyond the *Alps*: The other has a curled Grain, so curiously maculated, that; from a near Resemblance, it was actually called the Peacocks-tail, &c. He goes on, The *Bruscum* or Knur is wonderfully fair, but the *Molluscum* is counted most precious; both of them Knobs and Swellings out of the Tree. The *Bruscum* is more intricately crisped, the *Molluscum* not so much; large Planks for Tables would be preferred before Cedar or Citron (for so some Copies read it) but now they use it only for small Table-books, and with its thin Boards to wainscot Bed-testers with. The *Bruscum* is of a blackish Kind, with which they make Tables. Thus far *Pliny*. Such spotted Tables

bles were the *Tigrine* and *Pantherine* Curiosities of, being so named from its natural Spots and Maculations.

Tables of mighty Value. Divers Woods finely chambered. The ancient Cistern, or Citron-wood, where it grew. Maple of bigb Value with Virgil. Rich Furniture our Interest. Such a Table, as I before mentioned, was that of *Cicero*, which cost him 10,000 Sesterces: Such another had *Asinius Gallus*. That of King *Juba* was sold for 15000, and another which my Author read of, at 140,000 H. S. which, at three Pence Sterling, arises to a pretty Sum, about 1750*l.* and yet, that of the *Mauritanian Ptolemy* was far richer, containing four Feet and a half Diameter, three Inches thick, which is reported to have been sold for its Weight in Gold. Of that Value they were, and so madly luxurious the Age, that when they at any Time reproached their Wives for their wanton Expensiveness in Pearl, and other rich Trifles, they were wont to retort and turn the Tables upon their Husbands. The Knot of the Timber was most esteemed, and is said to be much resembled by the female Cypress; we have now as beautiful Planks of some Walnut-trees near the Root; and Yew, Ivy, Rosewood, Ash, Thorn, and Olive yield incomparable Pieces; but the great Art was in the Seasoning and Politure; for which last, the Rubbing with a Man's Hand, who came warm out of the Bath, was accounted better than any Cloth, as *Pliny* reports. Some contend, this Citron was a Part near the Root of the Cedar, which, as they describe that, is very Oriental, and odoriferous; but most of the Learned favour the Citron, and that it grows not far from *Tangier*, about the Foot of Mount *Atlas*, whence happily some industrious Person might procure it from the *Moors*. The learned Dr. *Grew* has shewn some Reasons for the pretty Undulations and Chamfers, which we frequently find in divers Woods. Surely there have
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been some Maples of large Bulk and noble Shades, that *Virgil* should chuse it for the Court of his *Evan-der*, one of the worthiest Princes, in his best of Poems, sitting in his Maple Throne: And when he brings his *Aeneas* into the Royal Cottage, he makes him this memorable Compliment: Greater, says great *Cowley*, than ever was yet spoke at the *Escorial*, the *Louvre*, or *White-hall*.

*This bumble Roof, this rustic Court, said he,
Receiv'd Acides, crown'd with Victory:
Scorn not (great Guest) the Steps where he has trod,
But Wealth contemn, and imitate a God.*

It is not only my Author, but divers others that call the *Romans* madly luxurious, for buying Tables and other Furniture at very great Rates. Altho' Luxury signifies nothing but Excess, which is, if there be but a Ribbon more, when a Pack-thread would serve the Turn; yet it is generally spoke with such an Emphasis, as if it was highly criminal, which I cannot understand; for, suppose a Nobleman with us be worth 30,000 *l.* a Year, and has 100,000 *l.* in Money, shall he live with a 10000 *l.* a Year, and save all the rest to buy more Land, and so *ad infinitum*? At this Rate he will never enjoy himself, nor his Estate, only, perhaps, may have his Head cut off, that others may enjoy his Estate at one Time or other: Besides, if we will use no Finery, we shall sell but little; but, by using much, we shall get and make such Store here, as to furnish the World with it, and the Nation will get more than what we spend does first cost.

A further Account of the Maple. The Wood of this Tree is softer than that of Beech, and harder than the Sycamore; and, being of a whitish Colour, is approved of, by the Turner, for making Hollow-ware, but most of all for Trenchers, because

because its delicate Colour and Grain is most pleasing to the Housewife, for this has no Heart, no more than Beech, and sells for the same Price, Six-pence per Foot. If this Tree is kept trimmed up in its Infancy, and continued to a good Height, before a spreading Head is allowed it, it will grow into a strait, smooth, pleasant Body, that will arrive sometimes to two Feet square in rich Earth. This Wood agrees with Clay, Loam, Gravel, Chalk, and most other Soils, and will grow in Standard, Hedge, or Coppice in Stems, in all which Forms I have it at this Under-growth.

C H A P. VII.

Of the SYCAMORE.

THIS quick-growing Tree is easily propagated, but not so much planted as heretofore about Yards and Gardens, because, where its broad Leaves drop, they spoil the Place by breeding Grass and Weeds. Mr. *Lawson's* Character of it in *America* is, that it grows in a low, swampy Land, by River-sides: Its Bark is quite different from the *English*, and the most beautiful I ever saw (says he) being mottled and clouded with several Colours, as white, blue, &c. It bears no Keys, but a Bur, like the sweet Gum. Its Uses I am ignorant of. Yet would this Tree be very pleasantly serviceable in *England* and elsewhere, if planted according to Mr. *Collinson's* Letter to Mr. *Bradley*, viz. — Many good Estates and fine Seats, that lie on the Sea-coasts, are rendered very unpleasant and incommodious, by their Exposedness to the Fury of the Weather. Some Attempts have been made to redress this Grievance, chiefly by making Plantations of Trees: yet in many Places this has not succeeded,

succeeded, which, I am persuaded, principally proceeds from a wrong Choice of Trees for such Exposures. In my Journey along the Sea-Coasts of *South Wales*, I observed the great Maple, or what is commonly called the Sycamore, completely to answer the Design of such exposed Plantations, it growing upright, standing firm, and arriving to a great Magnitude, though in the most exposed Situations. A particular Instance of the great Service, Benefit, and Beauty of this (I may say) despised Tree is at *Morgam*, a Seat of the Lord *Manfel's*, near the Sea, where his Garden and fine Orangery are on one Side protected by a stately Grove of this Tree, and on another Side by a beautiful Row. The Gardener told me, that, after several Essays, this Tree was only found to succeed best, and even to thrive, in a Tempest. I shall submit to thy better Judgment, if this will be worth communicating to the Public, and am thy sincere Friend,—*P.C.*— This Tree is an extraordinary quick Grower, and comes up from Seed the same Spring we sow them.

C H A P. VIII.

Of the BIRCH.

BIRCH described, how propagated, and where it thrives. Its Uses. Birch Wine. Birch is a Tree bearing its Seed in single Teguments or Coverings, viz. in Catkins, and called a jufiferous Tree of lesser Leaves, having tender reddish Twigs, with smooth and white Branches. This Birch is altogether produced of Roots and Suckers (though it sheds a Kind of *Samara*, or Seed, like the Elm, about the Spring) which being planted at four or five Feet Interval, in small Twigs, will suddenly

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rise

rife to Trees, provided they affect the Ground, which cannot well be too barren; for it will thrive in the dry, wet, sandy, and stony Marshes and Bogs; the Water-galls and uliginous or moorish Parts of Forests, that will hardly bear any Grass, do many Times spontaneously bear it in Abundance, whether the Place be high or low, and nothing comes amiss to it. Plant the small Twigs or Suckers having Roots, and after the first Year cut them within an Inch of the Surface; this will cause them to spout in strong and lusty Tufts, fit for Coppice and Spring-woods; or, by reducing them to one Stem, render them in a very few Years fit for the Turner. Though Birch be the worst of Timber, yet it is used for Ox-yokes; also for Hasps, small Screws, Paniers, Brooms, Wands, Bavin-bands, and Withs for Faggots; and claims a Memory for Arrows, Bolts, and Shafts, our old *English* Artillery; also, for Dishes, Bowls, Ladles, and other domestic Utensils. In *New-England*, our *Northern Americans* make Canoes, Boxes, Buckets, Kettles, Dishes, which they sew and join very curiously with Thread made of Cedar Roots, and divers others domestic Utensils, as Baskets, and Bags, with this Tree, whereof they have a blacker Kind; and, out of a certain Excrecence from the Bole, a Fungus, which being boiled, and beaten, and dried in an Oven, makes excellent Spunk or Touch-wood, and Balls to play withall. They also make small-craft Pinnaces of Birch, ribbing them with white Cedar, and covering them with large Flakes of Birch Bark, sew them with Thread of Spruce-roots, and pitch them, as it seems we did even here in *Britain*. Also for Fuel, great and small Coal, which last is made by charring the slenderest Birch and Summities of the Twigs; as, of the Tops and Loppings, Mr. *Howard's* new Tan. The inner, silken Bark was anciently used for Writing-tables, even before the Invention

Invention of Paper; and with the outward, and thicker, the coarser Part are divers Houses in *Prussia, Poland*, and those poor Northern Tracts, covered, instead of Slates and Tiles. Of the whitest Part of the old Wood, found commonly in doating Birches, is made Ground for sweet Powder; and of the quite consumed and rotten is raised the best Mould for the raising of divers Seedlings of the rarest Plants and Flowers; besides these, most Children know the Use of Madam Birch.

The Sap or Wine of the Birch-tree. This Tree yields the best Sap of any Tree in *England*, and the most in Quantity, prepared either with Honey and Sugar into a Wine; which, being now frequently made, hath obtained the Name of Birch-Wine, being a very pleasant and innocent Liquor, and retaineth a very fine Flavour of the Tree it came from. Where this Tree plentifully grows, great Quantities of this Liquor may be extracted, by cutting off some small Branches, in the Mouths of the Bottles, into which the Crystalline Liquor will distil; several Bottles may thus hang on one Tree; or by boring or cutting any Part of the Stem of the Tree, and by a Chip, or the like, to guide the Sap into the Neck of the Bottle. By either of which Ways, great Quantities of this Liquor may be extracted in the Month of *February* or Beginning of *March*, when the Sap ascends, and before the Spring of the Leaf; it will run freely, when the Wind is South or West, or the Sun shines warm; but not at all, if the Weather be very cold, or in the Night Time. Some have reported, that a Birch-tree will yield in twelve or fourteen Days its own Weight in this Liquor; I shall not persuade any Man to believe it, altho' it be most evident, that a few Trees will yield you a great Quantity of it. This Liquor, thus extracted and truly prepared, makes a very delicate

Repast. In *America* Birch grows on all the Banks of their Rivers, and runs up very high, but there is none of them seen in the Salts. Its Bark is somewhat different from the *European* Birch. In *April* it buds, and then the Parakeetoes flock to eat them. But, as to its Wine, the *Indians* are perfect Strangers to it.

C H A P. IX.

Of the LAUREL-TREE.

THIS is an Ever-green, whose Wood is next to Box, and so tough, that Carpenters make their Heads of Chissels with it; grows best in shady Places, and therefore is planted against the Sides of Houses, yet will bear a cold Aspect on a clayey Situation, and even grow under the Drip of Eaves of Houses, where it will preserve its fine green Colour in the greatest Perfection; and for this Reason it is a very proper Plant for adorning Arbours, Vistoes, Walks, and Avenues, either in Hedges or Standard-trees; and more, if they are kept clipped and pruned by an ingenious Gardener, in the several Shapes they will admit of. It may be propagated as the Bay-tree, and, if it enjoys a good Soil, it will acquire a Body of a Foot or more Diameter. It makes a fine coloured Wine that is very pleasant for a Glass or two, but is very apt to cause Sicknefs, if drank in a large Quantity. Its Leaves have been bruised and distilled in common Water for a Trial of their Nature, and by giving three Spoonfuls of it to a Dog, it proved such a Poison as killed him in about a Minute's Time; and why the Wine, made of its Berries, does not poison the human Body, may be, because the Boiling and Fermentation

tation of it breaks, evaporates, and cures its ill Properties. See the Receipt and more of this in my Book, intituled, *The Modern Cyderist*. This Tree may be best raised by setting and sowing the Berries, -or Seeds, as Acorns are, in Drills, and they will spring the first Year. There is a wild Sort growing in our Woods, that are of a more poisonous Nature.

C H A P. X.

Of the Lignum Vitæ, -or Tree of Life.

GUAIACUM, or Lignum Vitæ, described. How to propagate it. Its Use. How much imported. Sumach, Saunders, Brazil, and Logwood. Nepbritic-wood. Lignum Rhodium. Ebony, and Prince's Wood. There is, at this Time, a goodly ever-green Tree of this Sort growing on *Little Gad-desden-hill*, in *Hertfordshire*, where it has stood Time out of Mind, in a loamy Soil, of about two Feet deep, and, under that, a red Clay. Its Body appears perfectly sound, and very hard, growing about thirty Feet high, and, in some Part of it measures near a Foot Diameter, and bears a Berry of a Cinnamon Colour, in Shape like a Barberry. Its named *Guaiacum*, Pock-wood, or *Lignum Vita*, which is a Tree principally taken Notice of for its Use in Physic, being a Diaphoretic, or sweating Medicine, as well as a Cathartic, of a hot, biting Taste, and is much used against the Pox. This Tree grows of every Layer to a very tall, straight, goodly Tree, hardy in all Seasons: The Wood is incomparable for the Turner of Bowls, Boxes, Cups, and other Curiosities; and the Leaf, smelling like Ointment, makes one of the best for green Wounds, suddenly closing them, so that Mr. Evelyn wonders it

it is not planted more frequently in *England*. There was a great Tree of this Sort in the Queen's Garden, at *Theobalds*; but it is destroyed? The narrow Leaves of it were then in Esteem to cure Agues, by laying them to the Soles of the Feet, and renewing them, as they grew dry. The Chips, boiled in Water, have been very much used, not only for the Cure of the Pox, but the Scurvy; as also the Oil, and the Gum. The Gum, in particular, is now become almost an universal and the best of Remedies for the Gout and Rheumatism, being of so powerful a Nature, that I have known it take off a most violent, racking Pain of the Gout, in one Night's Time, that had seized the Foot of my Friend, and caused it to swell very much, by the Vehemency of it. But then the Gum must be taken in a right Manner, or else it won't answer. There are several Ways to do this, but this has been often experienced to do the Feat, *viz.* — Infuse half an Ounce of its Powder in a Pint of the best Rum, then put half a Quarter of a Pint of the Liquor into half a Pint of Ale, and drink it on an empty Stomach going to Bed; do this two Nights together, and it will surely answer, in a great Degree.—Some add Snake-root in Powder, or by Infusion: But this at Choice. The Wood is used, I believe, for all the Uses that Box was wont to be, except where there was Need for a bright Colour, as Rules and other mathematical Instruments, that must have Figures on them. Rollers, Punch-bowls, and other useful Things take up a great deal of this Wood, besides which there are several other Woods imported, as Sumach, Saunders of all Kinds, Brazil, and Logwood, which are used by the Dyer; but whether they will grow here I cannot say. We also import Nephritic-wood, which is esteemed good against the Stone, and is such (tho' of a lightish Colour) that, if you infuse it in fair cold Water, it will
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make it look blue, like Syrup of Violets. Also Rhodium of Rose-wood (chiefly from the *Canaries*) which is used much in Sweet-bags, and the Oil for many Uses. Ebony and Princes-wood are used for Looking-glass Frames, and several other Occasions. Oh! how thankful ought Men to be for God's infinite Mercy, in creating and communicating the Knowledge of this most excellent Remedy, that presently removes the exquisite Pain both of the Gout and Rheumatism.

C H A P. XI.

Of the LIMETREE.

LIME-TREE described. How raised. This Tree bears its Seed in single Teguments, or Coverings, and its Seeds are contained in round Bottoms: It hath broad Leaves ending in a Point, being smoother above than underneath, bearing a sweet Blossom, and a round Fruit, about the Bigness of a Pea, containing one Seed. Mr. *Evelyn* tells us, that the Lime-tree (or Linden) is of two Kinds; the Male (which some think but a finer Sort of Elm) is harder, fuller of Knots, and of a redder Colour, but producing neither Flower, nor Seed (so constantly and so mature, with us) as does the Female, whose Blossom is also very odoriferous, perfuming the Air; the Wood is likewise thicker, of small Pith, and not obnoxious to the Worm. Lime-trees may be raised, either of the Seeds, in *October*, or (with better Success) by the Suckers and Plants, which should be cultivated like the Elm. Prolific Seeds will be white and full, if bit, or cut. Be sure to collect your Seeds in dry Weather, airing them in an open Room, and reserving them in Sand till *Mid-February*, when you may

may sow them in pretty strong, fresh, and loamy Mould, kept shaded and moist, as the Season requires, and clear of Weeds; and, at the Period of two Years plant them out, dressed and pruned, as Discretion shall advise. But not only by Suckers and Layers at the Roots, but even by Branches lopped from the Head, may this Tree be propagated; and, peeling off a little of the Bark, at a competent Distance from the Stem, or Arms, and covering it with Loam mingled with rich Earth, they will shoot their Fibres, and may be seasonably separated: But, to accelerate this, apply a Ligature above the Place, when the Sap is ascending, or beneath when it descends; from *June* to *November* you may lay them; the Scrubs, less erect, do excellently to thicken Coppices, and will yield lusty Shoots, and useful Fire-wood. The Lime-tree affects a rich feeding, loamy Soil, where they will grow incredibly for Speed and Spreading. They may be planted as big as one's Leg; their Heads topped at about six or eight Feet Bole; thus it will become, of all others, the most proper and beautiful for Walks, as producing an upright Body, smooth and even Bark, ample Leaf, sweet Blossom, and a goodly Shade at the Distance of eighteen or twenty Feet. They are also very patient of Pruning; but, if it taper over-much, some collateral Bough should be spread to check the Sap; which is best done about *Midsummer*; and, to make it grow upright, take off the prepondering Branches with Discretion, and so you may correct any other Tree, and redress its Obliquity. The Root, in Transplanting, should not be much lopped; and this is a good Lesson for all young planted Trees.

Great Lime-trees removed. Advantages of the Lime-tree. Uses of the Lime-tree. How kept from Danger. Its physical Use. Distance for Walks. Magnitude. A Prince Elector did, at *Midsummer*, remove very great

great Lime-trees, from one of his Forests, to a steep Hill, exceedingly exposed to the Sun, at *Heidelberg*: They grow behind that strong Tower, on the South-west and most torrid Part of the Eminence; being of a dry, reddish, barren Earth, yet do they prosper rarely well: But the Heads were cut off, and the Pits, into which they were transplanted, were fill'd with a Composition of Earth and Cow-dung, which was exceedingly beaten, and so diluted with Water, as it became almost a liquid Pap; in this were the Roots plunged, covering the Surface with the Turf: A singular Example! Other Perfections of the Tree (besides its unparall'd Beauty for Walks) are, that it will grow almost in all Grounds; that it lasts long; that it soon heals its Scars; that it affects Uprightness; that it stoutly resists a Storm; that it seldom becomes hollow. The Timber of a well-grown Lime is convenient for any Use that the Willow is, but much to be preferred, as being both stronger, and yet lighter; whence *Virgil* calls them *Tilias leves*; and therefore fit for Yokes, and Boxes for the Apothecaries: Because of its Colour, and easy Working, and that it is not subject to split, Architects make with it Models for their designed Buildings, and small Statues; and little curious Figures have been carv'd off the Wood. With the Twigs they make Baskets and Cradles, and of the smoother Side of the Bark, Tablets for Writing; for the antient *Philyra* is but our *Tilia*. The *Grecians* made Bottles of it, which they finely rosined within-side; so likewise for Pumps of Ships, and Lattices for Windows. The Engravers in Wood do sometimes make Use of this fine Material; and even the coarsest Membrane, or Slivers of the Tree, growing betwixt the Bark and the main Body, they now twist into Bas-ropes; besides, the Truncheons make a far better Coal for Gunpowder, than that of Alder itself; and

the extraordinary Candour and Lightness has dignified it, above all the Woods of our Forrest, in the Hands of the *White-Staff* Officers of the Court. Those Royal Plantations of these Trees, in the Parks of *Hampton-Court* and *St. James's*, will sufficiently instruct, how these, and all other single Trees, are to be governed, and defended from Injuries, till they are able to protect themselves. Some shelter them with three or four Deal-boards; which is not approved of, because it keeps them from the free Air. This is of admirable Effect against the Epilepsy, for which the delicately scented Blossoms are held prevalent. The Distance for Walks may, in rich Ground, be eighteen Feet; in a more ordinary, fifteen or sixteen. The Berries, reduced to Powder, cure the Dysentery, and stop Blood at the Nose: The distilled Water is good against the Epilepsy, Apoplexy, Vertigo, Trembling of the Heart, and Gravel. *Schroder* commends a Mucilage of the Bark for Wounds, and other Distempers. Sir *Thomas Brown* gave an excellent Account of a Lime-tree, at *Depeham* in *Norfolk*, that, in the least Part of the Trunk, which was about two Yards from the Ground, was, at least, eight and a half Yards in Circumference, and, about the Root, nigh the Earth, sixteen Yards; and, half a Yard above that, about twelve Yards: The Height, to the uppermost Boughs, about thirty Yards.

Another Person's Account of the Lime-tree. The Lime-tree delights in a good, rich Garden-soil, and thrives not in a dry, hungry, cold Land. It is raised from Suckers, as the Elm, or from Seeds, or from Berries, which, in the Autumn, drop from the Trees. We have a Sort of *Tilia*, that grows wild here in *England*, which almost equals those brought out of *Holland*, where there are Nurseries to raise them straight and comely. This Tree is, next the *Platanus*, of all other, the most proper and

Of the QUICK, *or* WHIP-BEAM. 91

and beautiful for Walks, as producing an upright Body, smooth and even Bark, ample Leaf, sweet Blossom, and a goodly Shade at the Distance of eighteen or twenty Feet, their Heads topped, at six or eight Feet high; but, if they are suffered to mount without Check, they become a straight and tall Tree in a little Time, especially if they grow near together; they afford a very pleasant, dark Shade, and perfume the Air, in the Months of *June* and *July*, with their fragrant Blossoms; and entertain a mellifluous Army of Bees, from the Top of the Morning, till the cool and dark Evening compels their Return: No Tree is more uniform, both in its Height and spreading Breadth. I have known excellent Ladders made of Lime-tree Poles, of a very great Length; the Wood may also serve for several mechanic Uses, like unto other soft and aquatic Woods.

C H A P. XII.

Of the QUICK, *or* WHIP-BEAM.

THIS Tree, according to its Name, will grow a-pace, like a Beech, in light, chalky Soils; but, in stiffer Land, it grows more slowly. It makes a pretty Show with its silver Leaves and red Berries; but I cannot learn, that its Berries are good for any Use. When it grows as a Standard, some will run into fifteen, or more, Inches Diameter; and, when it is of a proper Bigness, it serves the Turner for making Dishes and other Utensils, being a whitish, light, tough Wood; and, when it grows in Stems in Coppices, it serves the Plough-boy to make himself a Horse-whip, because its Shoots are of the tough Sort, and for Faggoting.

&c. The Sets may be planted as Ash, or the Berries, ripe in *October*, may be sown. There are many of these Trees now growing in *Hertfordshire*.

C H A P. XIII.

Of the HOLLY.

A R A R E *Holly-hedge. Divers Sorts. The Variegated made by Art. How to propagate Holly by Sowing and Setting.* This Tree Mr. *Evelyn* prefers before all other *English* Winter Greens, for its delicate red Berries, and large, shining, prickly Leaves, and the serviceable Wood, that, on many Occasions, is made Use of; therefore he wonders at those, who are expensive in foreign Greens, and yet neglect the Culture of this incomparable Tree, which ought to be propagated, not only for Ornament, but Defence and Profit. In a Translation from *Cowley*, he says thus:

*A Hedge of Holly Thieves, that would invade,
Repulses, like a growing Palisade;
Whose numerous Leaves such orient Greens invest,
As, in deep Winter, do the Spring arrest.*

This Gentleman, says Mr. *Houghton*, thought he had a glorious Sight by an impregnable Hedge, that he had growing in his Garden, of near three hundred Feet in Length, nine Feet high, and five in Diameter, glittering with its armed and varnished Leaves; and the taller Standards, at orderly Distances, blushing with their natural Coral, mock at the rudest Assaults of the Weather, Beasts, or Hedge-breakers, nor can any, unpunished, hurt it. There are two eminent Kinds; the prickly and smooth-

smooth-leaved, or, as some call it, the Free Holly, not unwelcome, when tender, to Sheep, and other Cattle : There is also the white-berried, and a golden variegated, which proceeds from no Difference in the Species, but accidentally, and by Sport of Nature, as most such Variegations do ; since we are taught how to effect this artificially, namely, by sowing the Seeds, and planting in gravelly Soil, mixed with Store of Chalk, and pressing it hard down, it being certain, that they return to their native Colour, when sown in richer Mould. With this excellent Plant, there might be living Pales and Inclosures made, as, he says, the Lord *Dacres* had, by environing his Park with it in *Suffex*, able to keep in any Game, and, cut into square Hedges, becomes impenetrable, and will thrive in the hottest, as well as the coldest Land. This Gentleman used to get Thousands of them, four Inches long, out of the Woods, amongst the fallen Leaves whereof they sow themselves, and so plant them ; but this should be, before the Cattle begin to crop them, especially Sheep, who are greedy of them, when tender. Stick them into the Ground in a moist Season, Spring, or early Autumn, especially the Spring, shaded, if it prove too hot and scorching, 'till they begin to shoot themselves ; and, in very sharp Weather, and during our Easterly Winds, covered with dry Straw, or Haulm ; and, if any of them seem to perish, cut it close, and you shall soon see it revive. The lustier and bigger the Sets are, the better ; and, if you can procure such, as are a Thumb's Breadth thick, they will soon furnish a Hedge. At *Dungeness*, in *Kent*, they grow naturally amongst the very Beach and Pebbles ; but, if your Ground be stiff, loosen it with a little Sand, or fine Gravel. This rare Hedge (the Boast of his Villa) was planted upon a burning Gravel, exposed to the meridian Sun ; but true it is, that Time must bring

bring this Tree to Perfection, it does so to all Things, and we must work for Posterity. But what if a little Culture about the Roots (not Dung-ing, which it abhors) and frequent Stirring of the Mould would double its Growth? We stay seven Years for a tolerable Quick; it is worth staying it thrice for this, which has no Competitor. Yet there is an Expedient to effect it more insensibly, by planting it with the Quick: Let every fifth or sixth be a Holly-set, they will grow up infallibly with your Quick; and as they begin to spread, make Way for them, by extirpating the White-thorn, till they quite domineer. Thus was the former Hedge first planted, without the least Interruption to the Fence, by a most pleasant Metamorphosis. But there is also another, not less applauded, by laying along well-rooted Sets (a Yard, or more, in Length) and stripping off their Leaves and Branches; these, covered with a competent Depth of Earth, will send forth innumerable Suckers, which will suddenly advance into a Hedge. The Timber of the Holly (besides that it is the whitest of all hard Woods, and therefore used by the Inlayer, especially under thin Plates of Ivory, to render it more conspicuous) is for all sturdy Uses; the Mill-wright, Turner and Engraver prefer it to any other: It makes the best Handles and Stocks for Tools, Flails, riding Rods, Carters Whips, Bowls, Shivers, and Pins for Blocks: It also exceeds for Door Bars and Bolts; and, as of the Elm, so of this especially, they made even Hinges and Hooks to serve instead of Iron; and, of the Bark, is made the best Sort of Bird-lime. In 1738, being then at *Canterbury*, I was in Company with an ingenious Cabinet-maker, who told me, that, if the Holly is to be used for Inlaying, it must be cut out green, else it will spot, and cut out thin, even as for Fanneer. This Wood will inlay white and black;

black; to keep it white, after it is cut out, they throw some Brimstone into a Fire, and hold it over it: To keep it black, they throw it into a Dyer's Furnace, and then it makes beautiful Work, by alternate Lays of it. Accordingly, both Joiner and Cabinet-maker, Whip-maker, Mill-wright, and others, buy this valuable Wood, that, when used thoroughly dry, is of long Duration, and great Service. There are some Holly-trees, that measure

in their Bodies, and are now more and more propagated for the fore mentioned Uses, and growing and cutting them into pyramidical and other Shapes. Some of these Trees I have now growing in my Hedges of the plowed Fields; and I have also some Poles of the Holly-hedge, growing among my common Hedge Wood at *Gaddefden*, that have been there Time out of Mind: And, to write impartially, I must own, I desire no more of its Company in such Situations, because it turns to little or no Profit for making Faggots, or other Fire-wood; which the White-thorn, Sallow, and others do, when they grow together; and yet serve as a sufficient Fence to keep all Sorts of Cattle, except Hogs.—The superior Leaves of Holly, dried to a fine Powder, and drank in White Wine, is prevalent against the Stone, and cures Fluxes; and twelve of the ripest Berries, being swallowed, purge Phlegm without Danger: To which the learned Mr. Ray adds, that there is a Remedy to be made with the most pointed Leaves of the Holly, boiled in Milk and Beer, that has asswaged the Tormenting Pain of the Cholic, when nothing else has prevailed. When the Berries are so ripe, as ready to drop, then gather them for Seed; for which Purpose, they must be freed from their tenacious and glutinous Mucilage, by being washed, and a little bruised, then dried with a Cloth; or else bury them, as you do Yew and Hips: And let our Forester receive this for

no common Secret, and take Notice of the Effect. But, at *Gaddesden*, where our Country abounds in Plenty of Woods, we, by Leave, get the wild Sets, and transplant them, where they are most wanted. And, to make a Hedge of these in the Field, or elsewhere, where a Ditch is required, observe to plant them in the same best Manner, that I have shewn in the Chapter of the *White-thorn*, as the quickest Way that ever was invented. In *America* there grow two Sorts, one has a small, the other a larger Leaf; here they grow in Plenty, among other Trees of the Wood, with very straight Bodies, and many of them measure two Feet Diameter.

C H A P. XIV.

Of the WITCH-ELM.

Monstrous Witch-Elms. At *Latmas*, near *Chebbam* in *Bucks*, and about eight Miles from *Little-Gaddesden*, in the late Lord *Cheney's* Estate, there stood a monstrous Witch-Elm that was believed to contain twenty Loads of Timber in its Body and Arms. It was so big and hollow, that, after it was cut down, a Man on Horse-back has rid into it; and, had that worthy Lord lived a little longer, he designed to have a Place cut through it, while it was standing, for his Coach and six Horses to pass. Also Dr. *Plott*, in his History of *Staffordshire*, tells us, of a Witch-Elm, that was so very large and tall, that two able Work-men were five Days in Stocking or Felling it down: That it fell forty Yards in Length; that this Tree, at the Butt-end, was seventeen Yards in Circumference; that it was eight Yards and a half about by Girth-Measure in the Middle; that fourteen Loads of Fire-wood, as much as six Oxen could

draw 300 Yards, broke off in the Fall; that there were forty-seven such Loads more of Fire-wood cut off from the Top; that they were forced to piece two Saws together, and put three Men to each End, to cut the Body of it in sunder; that there was cut out of it eighty Pair of Nathes or Stocks for Wheels, and 8000 Feet of sawn Timber in Boards and Planks, after Six-score *per Cent.* which, at three Shillings *per Cent.* came to twelve Pounds: All which is attested under the Hands of Sir *Harvey Bagot*, and his seven Servants. It had ninety-six Tuns of Timber after their gross Country Way of Measure; but, nicely cast up, it must contain 100 Tuns, a fifth Part being allowed for the Waste of Rind, Chips, &c. This mighty Tree grew at *Field* in *Staffordshire*, and the original Paper was put into the Doctor's Hands, by Sir *Walter Bagot*, Bart. the then, and, for aught I know, the present Proprietor: He had it, also from the Mouth of *Walter Dixon*, who was Surveyor of the Work.

The Nature of, and Benefit of planting this Tree.
It is surprizing, that this beneficial Tree is not more planted, since its Wood sells for as much as other Elm, when it is right good, as being near as durable as some Oak, when cut down in its full Maturity; for then it is hearted like the common Elm, is very valuable for building of Houses, Barns, or the like, and will last almost like such Oak, either under Cover, or Abroad. Its Bark is likewise of considerable Worth for feeding Deer in the Winter Season, who love it beyond the Bark of Ash, Thorn, or any other, as may be perceived by their greedy Browsing on its Arms, when cut off for this Purpose; for this Bark is composed of such stringy Parts, that a Piece, or Slip of it, may be run out in a String of twenty Feet long, and, being twisted with more, will be so strong,

that a Horse can't break it. This Tree, which will, in a right Soil, grow as big or bigger, than any other Tree in *England*, may be propagated by its Seed, which grows in Kids or Keys, like the Ash or Maple, or in any other Form, like the common or natural Elm; will thrive in Gravels, Loams, Clays, or moist Sands, and, that in single Growth, or in Hedges; will suffer Lopping, and therefore is valuable in Hedges and Coppices both in Vale and *Chilturn* Grounds, where their Stems will shoot into many fine straight Poles from the Earth, to great Profit, as being ready for cutting at nine, twelve, fifteen, or twenty Years Growth, according to the Use they are wanted for, and with which we make Hurdles, Gates, Poles, and many other Things in Husbandry; for this Sort of Elm is far beyond the natural Sort, on Account of its easy Rending, which the other is not so apt to-do. It also makes excellent brown Boards for Floors, and Bowls, Dishes, and other Utensils, for the Turner's Benefit, Bavins and Faggots, of seven Feet long, to lay in Ruts, to prevent Wheels sinking in, may be made of this Wood; and, if these are laid one on another for a Foundation in morassy, spewy Grounds, a good Road may be made, if a sufficient Quantity of Stones are laid over all: Therefore, I can't but think it strange, that this useful Tree should be so slighted by Mr. *Houghton*, as to induce him to say, "I hope we shall see no more such great Trees in *England*, for that the Ground they might grow on will be better employ'd; altho', I must confess, Elms commonly grow in Hedge-Rows, and spoil as little Ground, as most Trees do, and they are very useful to grow near Cities and Towns where the Water is carried, in Pipes under Ground, to the particular Houses." — To this Account, I add, that in *Nettleden* gravelly

Bottom, joining to *Little Gaddesden*, there grow several Witch-Elm, and natural Elm Trees. The Witch-Elm, in this, acquires a tougher Wood, than it does in some other Earths, and the natural or common Elm, a shorter and softer Wood, than it does in Clays and stiff Loams; and when it is so, the Grain does not knit, or grow twisting one Part into another, which renders it not so good for Stocks of Wheels, Chopping-blocks, &c. as when it grows curled and hard; but when the natural Elm is in full Perfection of Hardness of Grain, it is better for these Uses, than some of the Witch-Elm, which being of a more tougher, but softer Nature, is sooner apt to crack and split than the natural Elm; yet, in a right Soil, there have some Witch-Elms grown so tough, and their Grain so twisted, curled, and knit, that I have heard Sawyers affirm, it is the worst Wood for their Profit that they work on; and then such Witch-Elm Wood proves tougher, more curled, and more serviceable, for both the Wheeler's and Turner's Use, than many of the natural Elms, whose Bodies are composed of a softer Wood, and straighter Grain: And it is of such Witch-Elm that the most durable Sort of great hollow Butchers Trays and Chopping-Blocks are made, for these won't crack, nor can be so easily cut, as other Wood, and therefore the largest and best of hollow Bowls are made with this Wood; and though the Timber in general is not reckoned so good as the natural Elm, yet the Bark of the Witch-Elm out-does it; for the Bark of this Tree, at any Time of the Year, will make Bals-ropes, somewhat like the Strings of the Cocoa Shell, but not so fine.

C H A P. XV.

Of the HORN-BEECH or HORN-BEAN.

MR. Worlidge's *Account of Horn-beech*. He says, Horn-beech, or Horn-bean, chiefly desires to grow in cold Hills, and in the barren and most exposed Parts of Woods. The most expeditious Way of raising it, is planting its Sets, or by sowing its Seeds in *October* or *November*. It is a very hard Wood for the Mill-wright, for domestic, or rural Utensils, where Hardness is required. Being planted at half a Yard Interval in a single Row, it makes a stately Hedge or Walk in a Garden or Park, growing tall and speedy, leaved to the very Foot of the Stem. But I shall further enlarge on this Tree, as follows.

The Nature and Improvement of the Horn-beech.
Horn-beech is a most profitable Tree for Planting on gravelly Soils, where it will grow to a good Bulk, and suffer its Head to be cut off like an Ash, and yet thrive afterwards in many brave straight Shoots or Poles: Which Operation, if performed on the common Beech, would prove its Death; but this will bear it many Times, and when it has stood so long as to be hollow, its Trunk or Body will make Billet-wood, and serve for drying Malt, and other Uses, as the Towns of *Hertford, Ware*, and many other Places annually experience. It is a tough Wood, and of a weaker Nature than the common Beech, for the Horn-beech will bend, when the other will not; will last longer in inside Building than the other will, for the Worm will not take this so soon as that: And therefore this Horn-beech is very much used for House-Work about *St. Albans, Welling, Hertford, Ware*, and Parts adjacent, for there is more of this
Wood

Of the Y E W - T R E E. 101

Wood growing hereabouts, than (I am of Opinion) in any three Counties beside ; insomuch that it is chiefly by the Horn-beech that the Eastern Parts of *Hertfordshire* are supplied with Faggot, and Billet-wood, for making Cogs of Wheels, and the round Staves that are turned by them. Not but that the Crab-tree-Wood is far preferable, for Hardness and Duration, to either of the Beeches ; but as large Quantities are not to be had of the Crab, they are forced to make Use of this. Its Lop grows in fine straight Poles, and so does its Stem in Coppice-Woods, which, in that of mine, I often admire for their regular Posture, being of Service in many Uses to the Farmer, and others, as I have more fully wrote of in my first Part. And it is for these Reasons, that Owners of this Wood find their greatest Profit in making these Trees Pollards, for it's very rare to see a straight intire Tree of any great Bigness of this Horn-beech ; for, indeed, if they were to stand ever so long, they would not arrive to near the Bulk of the common Beech, for there was hardly ever seen a Horn-beech in its original Growth, much above a Foot square in its Body, which always is of a whiter Colour than the common Beech ; and, in the Months of *August* and *September*, makes a fine pleasant Sight, by its scarlet Pods or Kids of Seed hanging in great Plenty on thriving Trees.

C H A P. XVI.

Of the Y E W - T R E E.

THE *Yew-tree* described. Its Uses. Their Culture. Plenty in *Surrey*. *Yew-wood*. This is an *European* Tree, ever-green ; it bears small, narrow Leaves of a dark Green, and red Berries. Mr. Evelyn

Evelyn tells us of the *Arcadian* Black and Red, and the Yellow of *Ida*, infinitely esteemed of old ; but, since the Disuse of Bows, their Propagation is forborn, though to our Shame, seeing the barrenest Grounds, and coldest of our Mountains, might profitably be replenished with them ; for, besides the Use of the Wood for Bows (for which the close and more deeply dyed is best) 'tis excellent for Cogs of Mills, Posts to be set in moist Ground, and everlasting Axle-trees ; also the Bodies of Lutes, Theorbo's, Bowls, Wheels, Pins, or Pullies, and Tankards to drink out of. The *English* Yew-tree is easily produced of the Seeds, washed and cleansed from their Mucilage, then buried, and dried in Sand a little moist, any Time in *December*, and so kept in some Vessel in the House all Winter, and in some cool, shady Place all Summer : Sow them the Spring after. Some bury them in the Ground, like Haws ; it will commonly be the second Winter ere they peep, and then they rise with their Caps on their Heads. Being three Years old, you may transplant them, and form them into Standards, Knobs, Walks, Hedges, &c. in all which they succeed well, and are worth our Patience, for their constant Greenness all the Year : For Hedges, he prefers them, for Beauty and a stiff Fence, before any Plant he has seen. A great many of these Trees grow in *Surrey*, near *Box-bill*, where, he says, if in any Spot of Ground in *England*,

————— 'Tis here

Eternal Spring, and Summer all the Year.

Not far from this Place, it is said, that Dr^r *Moreton* lately bought an Estate, called *Yew-wood* ; and there are Spinings, or Coppices, of this Wood growing, that furnish Poles, Stakes, and many other serviceable Things, to the Farmer and Mechanic.

chanic. The Yew is used in Fanneering, for the Sake of its fine Knots; but, their very hard Nature making them difficult in Working, they are less in Use, than formerly.

C H A P. XVII,

Of the BOX-TREE.

THE Box-tree is a most hardy Ever-green, that will grow in a chalky, gravelly, poor Soil, as may be seen in the Box-warren, about two Miles off *Gaddesden*, where it grows in Hedges, and in Parcels, on the inclosed Land, at first planted here for the Refreshment, Shelter, and Security of Rabbits, and where, if not cut too much, it will remain for ever. This Tree, in richer Soils, will prosper well, and, in Time, acquire a Body of a Foot Diameter, but is a most slow Grower, as all the ever-green Kinds are; yet this Wood paid its Owner several hundred Pounds about the Year 1716, when great Quantities of it were felled off the chalky Downs, near *Darling*, in *Surrey*; for it is so scarce at this Time, in *England*, that we are forced to be beholden to *Turkey*, and other Parts, for a great deal, though it is much coarser than ours. This is one of the prettiest Sorts of Edgings; that are, for inclosing Garden-plots and Walks; likewise a most curious Ornament, when reduced into variety of Shapes and Forms; though some will exclude it, on Account of its injurious Scent. It is hardest and closest grain'd of any of our *British* Woods, and therefore much coveted by our Tradesmen, for engraving or cutting Figures on for the Printer, for Combs, Knife-handles, and many other Purposes, but is much counterfeited by full-grown

grown Elder-wood. It is increased by Slips; it is very serviceable for Horses troubled with Worms, for which we clip the Leaves small, and give them with Oats and Chaff.

C H A P. XVIII.

Of the PINE or FIR-TREE.

THE Turpentine and Fir-Tree described. The Turpentine-Tree, Dr. *Wilkins* says, is a bacciferous Tree, *European*, deciduous, whose Fruit is not esculent, having winged Leaves, the Wood being hard, which bears a small, round, oblong Fruit, in long Clusters, having many hollow Excrescences like Bladders. But that which I believe yields a great deal of our Turpentine, is the Fir-Tree or Deal, which is a coniferous Ever-green, whose Cones are of the lesser Sort, having long Leaves, either that whose Leaves encompass and cover the Branches, bearing long Cones hanging downwards, as the Male Fir-Tree, or Pitch-Tree; or that whose Leaves grow from each Side of the Stalk, being more flat, like those of Yew, green on the upper Side, and whitish underneath, furcated at the End, bearing Cones shorter and thicker, and growing erect, as the Female Fir-Tree.

Young Firs, how managed. Notwithstanding what the famous *John Evelyn*, Esq; an illustrious Fellow of the *Royal Society*, has said of this Tree, in his *Sylva*, I shall here epitomize him, that those, who have not read that Work, may perceive his ingenious Pen in this. He dislikes Transplanting of Firs, because, for want of Tap-roots (especially if set close and in Tufts) they are in Danger of
being

being destroyed by Winds: Therefore they do best in Walks, at competent Distances; Woods should be sowed and not removed. He says, the Fir is easily raised of the Kernels which may be gotten out of their Cones, by exposing them a little before the Fire, or in warm Water, 'till they begin to gape. There are two principal Species; the Male, which is the bigger, most beautiful and tapering, of a harder Wood, and more hirsute Leaf; and one Sort, called the *Spanish* Fir, bears its Leaf, like Rosemary, with a white Rib underneath, which he supposes the Female, and is much the softer and whiter; though Whiteness be not the best Character. Dram Deal, and what comes from *Bergen*, *Swin-sound*, *Moss*, *Long-sound*, *Dranton*, &c. long, straight, clear, and of a yellow, more cedric Colour, is esteem'd much before the white for Flooring and Wainscot; For Masts, &c. those of *Prussia*, called Spruce, and *Norway* (especially from *Gottenburg*) are the best; except those of *New-England*, which are preferable to any of them; there lying rotting then, and, for aught I know, still at *Pascataway*, a Mast of that prodigious Dimension, as none will adventure to bring away. The Hemlock-Tree (as called in *New-England*) is a Kind of Spruce. In the *Scotch Highlands*, are Trees of wonderful Altitude (tho' not so tall, thick, or fine as the former) from whence we may bring Seed. To the former may be added the *Esterund* Firs, *Tonsbury*, *Frederickstadt*, *Hellerone*, *Holmstrand*, *Laudiser*, *Slavenger*, *Laurwat*, &c. There is also a Fir, called, in *Dutch*, the *Green-boome*, much used for Building Merchant-ships, which stand much out of the Water. 'Tis light and not strong, like Oak; it comes from *Norway*, and other Eastland Countries; it is heavier than Fir, but neither bend sufficiently. The Seeds may be sown in Beds, or Cases, in

March, and, when they peep, carefully preserved with Furzes, or the like Fence, from Birds. The Beds must be sheltered from the South with a Screen of Reed, or thick Hedge. Sow them not above half an Inch deep in shallow Rills, and cover them with fine rich Mould. Being risen a Finger high, strengthen their Stalks, by sifting some Earth about them. When two or three Years old, you may transplant them; after three or four Years, when well rooted, they make prodigious Shoots.

Management of young Firs continued. The Fir-Tree will grow both in moist, or barren Gravel, and poor Ground, if not over light and sandy. Before Sowing, turn it up a Foot deep, sowing or setting your Seeds a Hand Distance, and riddle Earth on them: In five or six Weeks they will peep. When you transplant, water them well before, and cut the Clod out about the Root, as Melons out of the Hot-bed, which knead close to them: Thus they may be safely sent many Miles, but the Tops must neither be bruised, nor cut, which would dwarf them: One Kind will take off Slips or Layers interred about the latter End of *August*, and kept moist. The best Time to transplant, is in the Beginning of *April*: They will thrive mainly in a stiff, hungry Clay, or rather Loam; but by no Means in over light or rich Soil: If your Ground be improper, fill the Holes with such barren Earth; and, if the Clay be too stiff, with a little Sand, removing with as much Earth about the Roots, as it is possible: If, through Necessity, you plant towards the latter End of Summer, lay a pretty deal of Horse-litter upon the Surface of the Ground, to keep off the Heat; and, in Winter, the Cold; but let no Dung touch the Stem or Root. You may likewise sow in such Earth about *February*: They will shoot the first Year an Inch, the next, a Handful, the third, three Feet, and,

and, thence forward, above a Yard annually. There are Trees in *Northumberland*, which were in a few Years, as big as Ships Masts. From all may be deduced these Encouragements: The Facility of the Propagation; their affecting Places, where nought else will thrive; their Uniformity and Beauty; their perpetual Verdure; their Sweetness; their Fruitfulness, affording Seeds, Gum, Fuel, and Timber, of all other Woods, the most useful and easy to work, &c. All which, says he, highly recommend it, as an excellent Improvement of Husbandry, fit to be enjoined, by some solemn Edict, to the Inhabitants of this Island, that we may have Masts, and those other Materials of our own Growth. Fir is of extreme great Use; it makes our best Mast, Sheathing, Scaffold-Holes, &c. heretofore the whole Vessel: Also Variety of inestimable Works, as Waincot, Floors, Pales, Balks, Laths, Boxes, and Bellies for all musical Instruments in general. Many good Masts have been brought from *Norway*, and some from *Muscovy*, which are best esteemed (as consisting of long Fibres without Knots) but Deal-boards from *Norway*; and, though Fir rots quickly in salt Water, it does not so soon in fresh, nor do they yet refuse it in Merchant-Ships, especially the upper Parts, because of its Lightness. Fir is exceeding smooth to polish on, and therefore does well under Gilding, and takes Black equally with Pear-tree. Fir therefore succeeds well in Carvings, as for Capitals, Festoons, nay, Statues, especially being gilded, because of the easiness of the Grain to work, and take the Tool every Way; nay, that famous Image of the blessed Virgin at *Loretto* (said to be carved by St. *Luke*) was made of Fir. The Heart of Deal is everlasting, if kept dry, and no Wood agrees with Glew like it, or is so easily wrought.

The Uses of Fir. 13,659 *Masts* under the *Stadt-House* of *Amsterdam*. *Cities built with Fir.* It is also excellent for Beams, and other Timber-work in Houses, being both light and exceeding strong, and therefore good for Bars and Bolts of Doors, as well as Doors themselves, and for the Beams of Coaches. A Board of an Inch and half thick will carry the Body of it with great Ease; of old, they made Carts and Coaches of it; and for Piles to superstruct on, in boggy Grounds. Most of *Venice* and *Amsterdam* is built upon them, with so excessive Charge, as, some report, the Foundations of their Houses cost as much, as what is erected on them, there being driven in no fewer, than 13,659 great Masts of Fir under the new Stadt-house of *Amsterdam*. For Scaffolding, none like it. It is thought we may supply ourselves with Fir, if we would, or, at least, have it from *Virginia*, where it is so good, that no Country is better stored; which, as he thinks, would save abundance of ready Money, carried now into the Northern Countries. In a Word, not only here and there a House, but whole Towns and Cities are, and have been, built with Fir only; nor yet alone in the *North*, as *Moscow*, &c. where the Streets are paved with it (the Bodies of Trees lying one by another in manner of a Raft) but even *Constantinople*. And, nearer home, *Toulouse*, in *France*, was, within not much more than 100 Years, most of Fir, which is now wholly Marble and Brick, after 800 Houses had been burnt, as it often chances at *Constantinople*. To conclude with the Uses of Fir, from which we have most of our Pot-ashes, together with Torch, or Funeral Staves; nay, and, of old, Spears of it, if I may credit *Virgil's Amazonian Combat*: Lastly, the Chips or Shavings of Deal-Boards, besides Kindling of Fires, are useful to keep Drink, in
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lieu of Hops; and *Bartbolin* says, it gives it a natural Odour. And how sovereign the resinous Tops of Fir and Pine are against the Scurvy, Gravel in the Kidnies, &c. is generally found. There are many other Uses for the Pine, which it is very probable, may be applied to the Fir; they are Plantations, which exceedingly improve the Air by their odoriferous and balsamic Emissions; and for Ornament, create a perpetual Spring, where they are plentifully propagated. Some assert, that the *Almug-trees*, recorded, 1 *Kings* x. 12. were Fir. Fir grew in *Lebanon*, 2 *Chron.* ii. 8. and *Meibomius* shews, that there were such Trees brought out of *India*, or *Ophir*. Mr. *Purchas*, saith Dr. *Dee*, writ a laborious Treatise wholly of this Subject, where he considers twelve Trees, and at last concurs with *Josephus* in favour of Pine and Fir. 'Tis believed to be a Material odoriferous and beautiful, and of firstest Temper to refract Sounds, besides it Serviceableness in Building. But here I must object against *Virgil* for writing, that we have most of our Pot-ash from Fir, because Fir, or Deal, makes nothing but an earthy light Substance, instead of Ashes, by reason the Sap and Wood of this Tree has so much Turpentine in it, as makes it burn into such light Ashes, that they may be easily blown away. But whether his Fir in *Italy* was another Sort, than ours at *Gaddesden*, I know not.

How Pitch, Tar, and Rosin are made from the Pine and Fir-tree. These Trees begin to decay at fifty Years End, and then are fit to cut down, sometimes in very large Bodies; some whereof, that have come from *New-England*, have been forty-two Inches Diameter, when those from *Denmark* seldom exceed twenty-two. The small Sort are generally spliced for Masts. Dr. *Hook* says, that if a Hole was bored through them from Top to Bottom, it would

would keep them from cleaving, cracking, and chopping; and, indeed, from rotting; for, as he says, when a Tree is moist within, if the Moisture cannot get out, it will there ferment, and work like bottled Ale. This the Joiners in particular know, when green Wood is painted over, the Paint covers all, and keeps out the Air, and in the Moisture, till the Wood turns all to Dust. Such Mast will also be lighter a great deal, and not top heavy, but rather stronger than all solid, because it will bend better. The Turpentine of this Tree is chiefly got by Incision, and is excellent in the Cure of Wounds, and for many other Uses. It is from the Pine, that both Pitch and Tar also are made, and there is called by some the Pine or Pitch-tree: By burning its Turpentine-Knots as we do our Charcoal, which causes the Tar to run out of them, and the remaining Knots become good Charcoal, according to the *New-England* Way, where these Pitch-pines grow on barren Plains, Rocks and Hills, rising among the Plains. Small Slivers of these Knots burn there, instead of Candles, and therefore they call them Candle-wood. But these Knots are not to be separated, but by Time, because the Charge of doing it would be too much in a forcible Way. By boiling Tar alone to a sufficient Height, is Pitch made; but sometimes Rosin is boiled in the Tar to make it come sooner into Pitch. And, to make this Rosin, they split these Knots and boil them in Water, which will fetch out the resinous Matter, which, when cold, is pure Rosin: So that both the Fir and the Pine yield Turpentine, that makes Tar, Pitch, and Rosin. And a certain Author says, these Fir-trees, in *Scotland*, will yield Plenty of excellent Tar. Near *Marseilles*, he says, they make Tar and Pitch, &c. another Way; by debarking the Pine-tree in the Spring to make

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the Sap or Turpentine run into a Hole, which, as it runs, leaves a Cream or Crust behind it, which, when tempered in Water, is sold, by way of Cheat, for white Bees-wax, that they make Flambeaux of; then they strain the Juice to make common Turpentine, and the Remains, distilled, make Oil of Turpentine, and the Calx of them Remains makes common Rosin; then they cut the same Tree into Chips, and which, as they burn like Charcoal, the Fire causes a thick Juice to run out; and this is Tar, which when gently boiled to consume more of its Moisture, it turns it into Pitch: And indeed all the natural Balsams are but different Sorts of Turpentine, though they differ in Virtues, as Apples and Pears may differ from one another. In short, the Fir-tree, although brought from Abroad, is so cheap and soft to work out, that, in the Opinion of some, it is cheaper to build Houses with Fir, than to fell, saw, and work out Oak, or Elm, if it grew in one's own Ground: But this Supposition is made on the Houses being situated near the Sea-side in the Western or Northern Parts of *England*, and in Consideration that such Oak, and Elm will yield double the Price of such Fir, or Deal. But, I must not forget to recite my being agreeably surpris'd, on hearing the deal Organ, that now stands in the great Church at *Beccles*, in *Suffolk*, when I travel'd through that Country in 1736; and the more when I was inform'd, a Farmer made it, for whose Ingenuity (besides paying for the Making) they settl'd twenty Pounds a Year on him during Life, as Organist to play the same. And, if I am not mistaken, there is such another at *Bradford* in *Wiltshire*.

The Fir-tree, mention'd in my first Part, at Page 83, to grow before our Minister's House, at *Little-Gaddesden*, visibly fail'd in its Growth this Year,

Year, 1741, by the Appearance of its Leaves and Shoots, which, this Summer, had a wider Passage through them for the Wind, than before, by means of its declining Leaves and Branches, that shrink, or grow lesser and lesser, instead of increasing in Bulk. However, in my humble Opinion, it may be justly said to out-do all others, for Profit, on our Green or Common, where are great Numbers of the largest Beeches planted, besides black Cherry, Elm, Ash, and other Sorts of Trees, at this Time growing, because this Female Fir, or Pine, which bears no Seed, is so tall, as to become a Land-mark, and measure above two Feet Diameter in its Body ; a good Height. About the Year 1680, it was planted, where it stands as a large, young, thriving Tree ; and as it grew in a moist Loam, over a red Clay, no one Tree in our Parts has kept Pace with it, except the white Wood Sort, of which there are several, that at this Time stand within a very few Poles of this Fir-tree.

In *America*, and in *Carolina* in particular, there grow four Sorts of Pines. Here the Pitch-pine, growing to a great Bigness, has but a short Leaf, and its Wood stock'd with abundance of Bitumen, but so durable, that it seems to suffer no Decay, though out in all Weathers for many Ages, and is used on many Occasions, in variety of Shapes. It yields four particular Necessaries, as Pitch, Tar, Rosin, and Turpentine ; the last two are extracted by Tapping and the Heat of the Sun ; the other two with the Heat of the Fire. The yellow and white Pines are sawed into Planks, and also serve to make Masts, Yards, &c. as being the most serviceable Tree in the Woods of this Country. The Almond-pine likewise is made Use of for Mast ; but as for the Dwarf-pine, it is only for Ornament, as it is an Ever-green, like all the rest
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of the Pine and Fir Tribe. Fir, because it is full of great Plenty of Air and Fire, and but little Water, is light, and will not easily bend, says *Vitrucius*; but this Notion of Air, Fire, &c. in Timber-trees, seems to be appropriated to the Ancients only; for, though Air is resident in all the Interspaces of Matter, yet the Notion of Fire is not so easy to comprehend; and the Strength and Durability of Timber is certainly owing to its Solidity, or Continuity of Parts, rather than to any elementary Parts; and the true Reason, why Ash and Witch-elm will bend so well, is from those long Flakes, or Threads, which, in an uninterrupted Manner, and like a strong Cord, reach from the Bottom to the Top of the Tree; and this is the Occasion of its Toughness. The Durability of Timber also consists in its Solidity and Closeness of Contexture, in Opposition to that which is porous or spongy, and is, on that Account, too apt to imbibe too much Air and Water, which, taking Place, alternately destroy the Wood. And the true Reason of Alder's lasting under Water so long, is not altogether because it is an Aquatic, but because, the Pores of the Wood being under Ground, and so generally replete with Water, no Air can insinuate itself, being kept out by a stronger Body.

C H A P. XIX.

Of the CYPRESS-TREE.

THE *Cypress* described, &c. It is certain, that several Trees, which at this Time are deem'd natural Ones of this Island, were formerly Exotics; and in Time there will, undoubtedly, be many more endenizon'd here, since our Settlements Abroad

Abroad give us fair Opportunities for so doing. The Cedar and Cypress, in particular, deserve the best Encouragement, that can be given them, for their many excellent Uses, as hereafter. The Cypress is a coniferous, ever-green Tree, whose Cones are of the lesser Sort, having short Leaves which grow in a conical Figure, bearing small, roundish Cones. Mr. *Evelyn* says, 'tis a most pyramidal and beautiful Tree, and that, which bears the Cones, is called the Male: Formerly this Tree was treated as a most tender Plant; and only kept by the Curious, but now it is in every Garden, rising to a goodly Bulk and Stature; several of which grew in the Palace-Gardens at *Theobalds*, before this Royal Seat was demolished, since King *Charles* the First's Time. *Josephus* tells us, that the Cedar, in *Judea*, was first planted there by *Solomon*; who, doubtless, as a Virtuoso, tried many rare Experiments of this Nature. There is a Tradition, that the Cypress is never to be cut, for Fear of killing it: This makes them impale and wind them about, like so many *Egyptian* Mummies; by which Means, the inward Part of the Tree being heated, for Want of Air and Refreshment, it never arrives to any Perfection, but is exceeding troublesome and chargeable to maintain; whereas, indeed, there is not a more tonsile and agreeable Plant in Nature; for the Cypress may be cut to the very Roots, and yet spring afresh; and this was the Husbandry in the Isle of *Inaria*, where they used to fell it for Coppice-wood. For the Cypress, being raised from the Nursery of Seeds in *September* (or rather in *March*) and, within two Years after, transplanted, should, at two Years Standing more, have the Master-stem of the middle Shaft cut off, some Hand-breadth below the Summit, the Sides and smaller Sprigs thorn into a conic or pyramidal Form, and so kept clipped,

clipped, from *April* to *September*, as oft as there is Occasion; and, by this Regimen, they will grow furnished to the Foot, and become the most beautiful Trees in the World, without Binding or Staking: Still remembering to abate the middle Stem, and to bring the collateral Branches in its Stead to what Altitude you please. But, by Shortening the middle Shoot, is not meant the Dwarfing of it; and therefore it must be done discreetly, so as it may not over hastily advance, till the Foot thereof be perfectly furnished. Another Way of dressing this Tree, with all the former Advantages, is, by sparing the Shaft altogether, and diligently cutting away all the forked Branches, reserving only such as radicate directly from the Body, and, being shorn and clipped in due Season, will render the Tree very beautiful; and, though more subject to obey the shaking Winds, yet the natural Spring of it does immediately redress it, without the least Discomposure. Thus also may you form them into Hedges and topiary Works; or by sowing the Seeds in a shallow Furrow, and plucking up those that come too close and too thick: For, in this Work, it will suffice to leave them within a Foot of each other; and, when they are risen about a Yard high (which may be to the Half of your Palisado) cut off their Tops, as you are taught, and keep the Sides clipped, that they ascend by Degrees, and thicken at Bottom as they climb. Thus they will present you (in six or eight Years) with incomparable Hedges, preferable to all others, because they are perpetually green, and able to resist the Winds, better than any other, except the Holly, which indeed has no Peer: By *Winds*, is meant the fiercest Gusts, not their Cold; for, though no Frost impeaches them, (for they grow on the snowy Tops of *Ida*) yet our cruel Easterly Winds do sometimes

mortally invade them which have been late clipped, seldom the Untouched, or that were dressed or pruned in the Spring only. Among a thousand Cypresses, growing in Mr. *Evelyn's* Garden, there were not above four killed, in any of the most severe Winters; and they were occasioned by being cut to the Quick late in *October*, and by being raw of their Wounds, which made them take Cold, and gangrene; therefore, for Caution, never clip your Cypress late in Autumn. If you affect to see your Cypress in Standard, and grow wild (which may in Time come to be of a large Substance, fit for the most immortal of Timber, and indeed one least obnoxious to the Rigours of our Winters, provided you never clip, or disbranch them) plant of the reputed Male Sort: It is a Tree which will prosper wonderfully, and where the Ground is hot and gravelly, though he be nothing so beautiful, as it is of this, that the *Venetians* make their greatest Profit. There is likewise the *Tarentine* Cypress, so much celebrated by *Cato*; I do not mean our Savine, which some erroneously take for it, though there be a berry-bearing Savine much resembling the Cypress, which comes to be a gallant upright Tree, fit for the Standard: Both that and the *Millesian* are worthy Culture. Besides Raising from the Seed, the Ancients, who were wont to make great Plantations of them for Timber, had another Method, *viz.* If you receive your Seed from the Nuts, which used to be gathered twice a Year (but seldom ripening within) expose them to the Sun, till they gape, or near a gentle Fire, or put them in warm Water, by which Means the Seeds will easily be shaken; for, if you have them open before, they do not yield you half your Crop. About the Beginning of *April*, or before, if showery Weather, prepare an even Bed of fine Earth, and clap it down, as Gardeners do with their Spade

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for Purflain-feed (of old they rolled it with some Stone, or Cylinder) upon this strew your Seed pretty thick; then sift over them some fine Mould, more than half an Inch thick; keep them duly watered after Sun-set, unless the Season do it for you; and, after one Year's Growth, you may transplant them, where you please. Be sure to cleanse them, when the Weeds are young, lest you root up your Cypress; whilst young, if well watered, they will make a prodigious Advance. When that long and incomparable Walk of Cypress, at *Frascati*, near *Rome*, was first planted, they drew a small Stream, that ran in small Rills, or Gutters, by the Foot of it, and made it arrive (as is reported) to seven or eight Feet high, in one Year; but we may not be too prodigal, since, being once well taken, they thrive best in sandy, light and warmest Grounds, and therefore will not thrive in low moorish Places, stiff and cold Earth, &c. The *Venetians* sufficiently understand the Uses of the Timber in Rests, Harps, and divers Instruments of Musick; for it resists the Worm and Moth, and all Putrefaction to Eternity; and is also very sonorous, and therefore employed for Organ-pipes, as heretofore for Supporters of Vines, Pales, Rails, and Planks. The *Venetians* did every twenty Years (and the *Romans* every thirteen) make a considerable Revenue of it, out of *Candy*-Island. The Fell of a *Cupressetum* was reputed a good Daughter's Portion. In *Candy*, *Anno* 1400, a vast Cypress-wood was, by some Accident, set on Fire, and it burnt seven Years, the Wood being very unctuous. At *Venice*, were to be seen Planks of above four Feet in Breadth; and formerly the Gates of *St. Peter's* Church, at *Rome*, were framed of this Material, which lasted near 600 Years, and, at the End thereof, were as fresh and entire, as if they had been new; but
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Pope *Eugenius* the Fourth would change them for Gates of Brass. *Thucydides* tells us, that the *Athenians* used to bury their Heroes in Cypress Coffins; and many of the Mummy-chests, brought from *Egypt* with those condited Bodies, are of this Wood, which, 'tis probable, may have lain in those dry and sandy *Crypta* Thousands of Years. The lasting Bridge, built over the *Euphrates*, in *Chaldea*, by *Semiramis*, was hereof; and it is reported, *Plato* chose it to write his Laws in, before Brass itself, for the Diurnity of the Matter. It never rifts, or cleaves, but with great Violence; and the Bitterness of its Juice preserves it from all Worms and Putrefaction. To this Day, those of *Crete* and *Malta* build with it, because they have Plenty, and nothing out-lasts it, or can be more beautiful, especially than the Root of the wilder Sort, incomparable for its crisped Undulations. Divers will have this to be *Gopher-wood*, mentioned in Scripture; but whether it is proper for Shipping, I shall be silent now. The very Chips give Flavour to Muscodine, and other rich Wines; are an Improvement to the Air, and a Specific for the Lungs, as sending forth most sweet and aromatic Emissions, when clipped or handled; and the Chips and Cones, being burnt, extinguish Moths, and expel Gnats and Flies; nor is its Gum much inferior to the Terebinthine, or Lentise. In *America*, the Cypress is not looked on as an Ever-green, because its Leaves, in the Winter, appear red, till the Spring, and, on this Account, is called the Bald Cypress. This Tree grows here the thickest and tallest of all others, some being thirty-six Feet round. The Nuts, which this Tree plentifully bears, yield a most fragrant Balsam, that infallibly cures all green Wounds, as the *Indians* well know. Of the Bodies of these Trees, they scoop out Boats, of which some are so large,

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as to carry thirty Barrels into the Ocean. Its Wood will last long free from the Rot ; a Canoe will wear out four common Boats, with little or no Repair ; and Coffers, made with it, defend Cloth from Moths and all Vermin.

C H A P. XX.

Of the WALNUT-TREE.

W*Alnut-tree described. Its Sorts. The Black praised.* In my first Part, I have writ largely on this Tree ; and here shall observe, what Mr. *Houghton* writes on the Wall or *Welch* Nut, who says, that there are several Sorts of them, as the soft-shell and the hard, the whiter and the blacker Grain : The Black bears the worst Nut, but the Timber much to be preferred ; these we might get from *Virginia*, and propagate here : They bear a square Nut, of all others the most beautiful, and best worth planting ; but, had we Store of these, we should despise the rest ; yet those of *Grenoble* come in the next Place, and are much prized by our Cabinet-makers. In all Events, be sure to plant from young and thriving Trees, bearing full and plump Kernels. The best Way to elevate them is to plant the Nuts, and set them at the Distance, you would have them stand ; for which Cause, beat them off the Tree, some Days before they quit the Branches of themselves, and keep them in their Husks, or without them, till the Spring ; or bed them (being dry) in Sand, or good Earth, till *March*, or earlier, from the Time they fell, or were beaten off the Tree.

Propagation of Walnut-Trees. Grafting. Best Compost. What Ground best. Uses of the Wood. Though I said, the Nuts may be preserved to be
planted

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planted in *March*, yet they may be done sooner, if they be set in their Husks, for the extreme Bitterness thereof is deadly to Worms. Or it were good to strew some Furzes (broken, or chopped small) under the Ground among them, to preserve them from Mice and Rats, when their Shells begin to wax tender, especially if (as some) you supple them in warm Cow's Milk: But, being treated as aforesaid, you will find them already sprouted, and have Need only to be planted, where they are to abide, because they are most impatient of transplanting. But, if there be an absolute Necessity of removing, let your Tree never be above four Years old, and then by no Means touch the Head with your Knife, nor cut away so much as the very Tap-root, being so old, if you can well dispose of it; since, being of a pithy and hollow Substance, the least Diminution or Bruise will greatly endanger the Killing. It may be propagated by a Branch, slipp'd off with some of the old Wood, and set in *February*: Some say, they may be transplanted, when as big as one's Middle, better than when much younger. What they hint of putting a Tile-shed under the Nuts, when first set, to divaricate and spread the Roots (which are otherwise apt to penetrate very deep) is well enough. It is certain, they will receive their own Cyons, being grafted, and that it does improve the Fruit. The best Compost is the Strewing of Ashes at the Foot of the Trees, the Salt whereof, being impregnated with the Nitre of the Air, and washed into the Earth, is the best Dressing, whilst the Juice of the fallen Leaves, though it kill the Worm, is noxious to the Root. This Tree doth not refuse to thrive among others, and in great Woods, provided you strip up the collateral Branches. The Walnut delights in a dry Ground, and a rich Land; especially if it incline to a feeding

ing Chalk, or Marl, and where it may be protected from the Cold (though it affect Cold, rather than extreme Heat) as in great Pits, Vallies, and high-way Sides; also in stony Grounds of Loam, and on Hills, especially chalky; likewise in Corn-fields, 60 or 100 Feet Distance; and it is so far from hurting the Crop, that it is looked on as a great Preserver, by keeping the Ground warm; nor do the Roots hindred the Plough. Were this Timber in great Plenty among us, we should have far better Utensils of all Sorts for our own Houses, as Chairs, Stools, Bedsteads, Tables, Wainscot Cabinets, &c. instead of the more vulgar Beech, subject to the Worm, weak and unsightly: To counterfeit which, some wash over with a Decocti- on of the green Husks of Walnuts, &c. and, for all these Uses, the *Virginian* and the *Grenoble* Wal- nut are preferred.

Walnut-Trees, at what Distance planted. Where plenty. A Way of Increase. Uses of Walnut-wood. How coloured. Walnut-trees render most grace- ful Avenues to Country Dwellings, and do excel- lently near Hedge-rows; but had need be planted at forty or fifty Feet Distance, for they affect to spread both their Roots and Branches. In *Ger- many*, there are Arbours of them for many Miles together, and brave Plantations have been made by Sir *Richard Stidolph*, upon the *Downs*, near *Leatherhead* in *Surry*: Also at Sir *Robert Clayton's*, at *Marden*, near *Godstone* in *Surry*, who, as I have been told, has seventy Acres of Plantation, where- of great Part are Walnut-trees, which were chiefly pruned and managed by his own Hand; his Gar- den also has several Beds of young Walnut-trees, to supply Defects, and he has made a most pleasant Garden of a hilly Country. Also, about *Carse- Halton*, there are many thousand of these Trees do celebrate the Industry of the Owners, and will

certainly reward it with infinite Improvement, as I doubt not they do: And how these Places came to be furnished, I must tell, as I have heard. Some Queen, after *None-such*, the Royal Palace by *Telwell*, was built, made a Nursery of Walnut-trees, and gave them to any that would plant, and promise to take Care of them; and this I put down, to encourage the Charitable to do thousand Pounds Worth of Good, with a Charge, that, to a Gentleman, or Lady, is next to nothing. The *French* use the Wood of this Tree for most domestic Affairs: It is of singular Account with the Joiner, for the best grained and coloured Wainscot; with the Gun-smith, for Stocks; for Coach-Wheels excellent, and the Bodies of Coaches. They make Hoops and Bows of it in *New-England*, for want of Yew. The Drum-maker uses it for Rims, the Cabinet-maker for Inlaying, especially the firm and close Timber about the Roots, which is admirable for flocked and chambleted Works; some Wood especially, such as has come from *Bologne*, and *New-England*, very black of Colour, and so admirably streak'd, as to represent natural Flowers, Landships, and other Fancies. To render this the better coloured, the Joiners put the Boards into an Oven, after a Batch of Bread is forth, or lay them in a warm Stable; and, when they work it, polish it over with their own Oil very hot, which makes it look black and sleek, and the older it is, the more estimable; but then it should not be put in Work 'till thoroughly seasoned, because it will shrink beyond Expectation. It is not good for Beams or Joints, because of its Brittleness, though it has been observed, to give timely Notice of the Cracking, before it breaks.

The Use of Walnuts. The best Timber. Grafting, its Advantage. To preserve Walnuts good all the Year. The Fruit, Husks and all, when tender,
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and very young, are for Preserves, for Food and Oil, of extraordinary Use with the Painter in Whites, and other delicate Colours; Also for Gold-Size and Varnish; and with this they polish Walking-Staves, and other Works, which are wrought in with Burning. For Food, they fry with it in some Places, and use it to burn in Lamps; the younger Timber is held to make the better coloured Work (and so the Oak) but the older, more firm and close, is finer chambleted for Ornament; and the very Husks and Leaves being macerated in warm Water, and that Liquor poured on the Carpet of Walks, and Bowling-Greens, does infallibly kill the Worms, without endangering the Grass: Not to mention the Dye, which is made of this Lixivium, to colour Wool, Hoods and Hair, as of old they used to do. The Water of the Husks is sovereign against all pestilential Diseases, and of the Leaves, to mundify and heal inveterate Ulcers. That, which is produced of the thick Shell, becomes best Timber; that of the thinner, better Fruit. *Columella* has sundry excellent Rules how to ascertain and accelerate the Growth of this Tree, and to improve its Qualities; it is said, that, if this is grafted on the Ash, it is certain they will thrive exceedingly, become handsome Trees, and, what is most estimable, bear its Fruit within four Years; all which is recommended to the further Industrious. The green Husks dried, or the first peeping red Buds and Leaves, reduced to Powder, serve instead of Pepper, to condite Meats and Sauces. 'Tis better to cudgel off the Fruit, when dripping ripe, than to gather it by Hand; and, that the Husk may open, lay them in a dry Room, sometimes turning them with a Broom, but without washing, for Fear of Mouldiness. Some believe the Beating improves the Trees. Those Nuts, that come not

easily out of their Husks, should be laid to mellow in Heaps, and the rest exposed to the Sun, 'till the Shells dry, else they will be apt to perish the Kernel. Some preserve them in their own Leaves, or a Chest of Walnut-tree-wood; others in Sand; especially if you will preserve them for a Seminary, do this in *October*, and keep them moist, that they may spear, and be set early in *February*: Thus, after two Years, they may be removed a Yard asunder, cutting the Tap-root and side Branches, but sparing its Head; and, being two Yards high, bud, or remove them immediately. Old Nuts are not wholesome 'till macerated in warm and almost boiling Water; but if you lay them in a leaden Pot, and bury them in the Earth, free from Vermin, they will keep marvellously plump the whole Year about, and may easily be blanched.

How many Walnuts will make a Gallon of Oil. The Use of the green Husks and Leaves; also the Oil and Kernel. A Vomit. Young Nuts, their Use. Walnut Water. Preserved and candied Nuts. As for the Oil, one Bushel of Nuts will yield fifteen Pounds of peeled and clear Kernels, and that, half as much Oil; which, the sooner it is drawn, is the more in Quantity, tho' the drier the Nut, the better in Quality: The Lees, or Murk of the Pressing, is excellent to fatten Hogs with. After the Nuts are beaten down, the Leaves should be swept into Heaps, and carried away, because their extreme Bitterness impairs the Ground, and prejudices the Trees. The green Husks, boiled, make a good Colour to dye dark Yellow, without any Mixture; and the Distillation of its Leaves, with Honey and Urine, makes Hair spring on bald Pates: For a Pain in the Side, a Pint of the fresh Oil of this Nut gives immediate Ease; and also, the Juice of the outward Rind of the Nut makes an excellent Gargle
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for a sore Throat: The Kernel, being rubbed upon a Crack or Chink of a leaking Vessel, stops it better than Clay, Pitch, or Wax. In *France* they eat them blanched and fresh with Wine and Salt, having first cut them out of the Shell, before they are hardened, with a short, broad, brass Knife, because Iron rusts, and these they call *Cernoise*, from the Manner of Scooping them out. It is said, that one Dram of the inner Bark, dried, is a strong Vomit for a lusty Man. The young Nuts, before they shell, or at least, before the Shell grows hard, are sold in the Physic Markets at *London* abundantly; the Juice of which is a principal Ingredient in Treacle-water, for it is reckoned a great Alexipharmic, and what not: But truly, whether from this crude and unripe Fruit will arise any Thing better than fair Water distilled, I make some Scruple; notwithstanding, it is to be digested two Days, with several other Things, which, I do not say, will not help it, but it is best to try by itself: But, without Doubt, an Infusion, or Decoction of them, will make a better Medicine; wherefore the green ones, preserved, or candied with Sugar, must be far better than the simple Water, altho' the Taking the Bitterness from it prejudices it also for a Medicine.

To keep Rooks off from eating them. The Rook is a great Enemy to the Walnut, for, when they grow towards a Ripeness, they will carry them off in great Numbers: But, to prevent their Rapine, burn Straw now and then under their Boughs, and they won't come nigh them.

A Walnut-tree cut down too soon. At Darking in *Surry*, in the Year 1738, I was told, there formerly grew a Walnut near *Effingham*, whose Body was but eight Feet high, and yet had thirteen Loads of Timber in it, and seven Loads of Faggots, and sold only for twelve Pounds. For it had

so

so spreading a Head, that it covered a Rood of Ground: But this Tree was felled too soon, by an Accident, occasioned by the Sight of a Hole in one of its Arms, which made the Owner believe the whole Tree was decaying. Accordingly, they felled it, and then found their Mistake; for this Hole was made by a Wood-peeker, that afterwards built her a Nest in it, as it will in Oaks, and several other Trees. Now the Way to know, when a Walnut-tree is fit to fell, is, to bore a Hole near its Root, and, if it appears a curled blackish Wood, it is then at its Crisis and full Maturity. The Owner planted Apple-trees in its Room on a Hazel Mould, which lay about two Feet deep over a chalky Bottom. A Walnut-tree has a Heart and Sap, which, contrary to the Beech, is always stocked up by its Roots, and is generally sawed into two Inch Planks, for the Cabinet, Chair-maker, and other Tradesmen's Uses. In *America*, the Walnut-tree is called Black Walnut; a Name given it, as is supposed, to distinguish it from the several Hicories, which are all Trees of the Walnut Kind, and bear Nuts, as this does; of which there be three Sorts. The white Hicory has a Wood that, after it is cut down, will be rotten in three Years, if exposed to the Weather, like the Beech of this Country. Its Nuts are very hard and sweet, and therefore presently fat those Hogs that can crack them, being, in Taste, like an Almond; which tempts the *Indians* to store them up, dry them, and serve them to their Friends in Powder, as a Repast, or Sweet-meat; for this Kernel will dissolve in the Mouth, but the Shell must be spit out. This also they put in their Soups, and make a fine Venison-broth of it, while the Shell-part (being first beaten together) sinks to the Bottom. The second is Hicory, a very hard, heavy, and durable Wood for Walking-sticks, Pestles of Mortars,

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Mortars, and other Things. The third is called the Flying Bark Hicory, from its brittle scaly Bark, and bears a Nut with a bitter Kernel and soft Shell, like a *French Walnut*, that grows here: This Tree flourishes in good Land to a prodigious Bigness; and, with its hard Wood, they make Tables, Chests of Drawers, &c. that will never suffer the Worm to breed in it: Its Nuts have a thick Shell, as all the *American Nuts* have, and an oily Kernel, that will be less so, if kept a while. When this Nut has its yellow outside Husk on, it looks and smells like a Lemon. The Wood of our *English Walnut-tree*, when dry, is a light, tough Sort, and, like the Elm, is so knit in its Grain, that it will not split, nor crack, like most other Wood, when the Piercer is, or is not used, and Nails drove into it; and, although Walnut-tree is of such a light Nature, yet it is of long Duration, both in, and out of the Ground.

C H A P. XXI.

Of the BLACK CHERRY-TREE, &c.

THE Nature and Excellency of the Black and other Cherries. History tells us, that it was six hundred and eighty Years after the Foundation of *Rome*, ere *Italy* had tasted a Cherry of their own; which, being then brought thither out of *Pontus*, did, after an hundred and twenty Years, travel to *Great Britain*, and there propagate chiefly in the Counties of *Kent* and *Hertsford*; the Red Sort in the former, and the Black Sort in the latter: Since which, they have of late increased, and got into *Northamptonshire*, *Worcestershire*, *Yorkshire*, and *Devonshire*, &c. In *Devonshire*, they have a fine improved Cherry, which, when ripe, is of a Colour

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lour between Black and Red, somewhat like the Black Orleans. In *Yorkshire*, they have the *Ker-roont*, by some called the *Crown Cherry*; by others, *Belcher's Black*, as in *Surry*; but, in *Kent*, they name it the *Hertfordshire Black*, as I heard a Fellow cry them in *Chatham Town*, in the Year 1738. They have also, in this County, most of the fine improved Cherries mentioned in my first Part (at Page 68.) which were first (I believe I may say) planted there, by means of my Sending the several Sorts thither, to an ingenious Gentleman and Encourager of Improvement in Husbandry. The wild Black Cherry-Tree grows near as large, with us in *Hertfordshire*, on loamy Ground, as any other Tree, and that in few Years; for at Sixty, when this Tree is commonly at its full Maturity of Growth, the Body of one in my own Ground has been so big, that I could not grasp it with both my Arms; and, generally, these grow so high, that few will venture to gather all their Cherries, because of the many terrible Accidents that have happened to their Gatherers, by Bruises and broken Bones; for there is hardly a Year passes, but few or more have suffered this Way: However, for the sake of the many transcendent Qualities of this Tree, it deserves our special Regard, and to be planted in our best Ground, as its Wood is so valuable, as to counterfeit Mahogany so nearly, that it is often sold, in Tables and other Shapes, for the same; and therefore, when a Cherry-Tree of the Black Sort is sufficiently hearted, the Country Carpenter or Joiner will give nine, ten, or twelve Pence a Foot for it. And if it stands in good Soil, where Cattle come to shelter themselves under its spreading Boughs, from the too violent Heat of the Sun, it commonly grows to a great Bulk in a little Time, by the Aid of their Dung and Stale. But
above

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above all, this most serviceable Black Cherry-tree ought to be planted for the Sake of its salubrious Liquor, which it yields in great Quantities, if the Cherry is of the biggest wild Sort, or better, if it is the Kerroon ; for on this depends a great deal, because, when the Cherry is small, there is little else but Stone, and a bitter Skin, that renders it unfit to make Wine. Now it is for this Purpose, that I would chiefly encourage the Propagation of this Tree ; and of this I have Reason to be more than ordinarily intense, since I have drank this Liquor in admirable Perfection, at a Gentleman's Tabel in *London*, who formerly had been a Pupil to the celebrated Dr. — *Desaguliers*, and who had so dexterously prepared it, that he commonly made it a Question to any new Visitor, Whether he could tell what Sort of Wine it was ? And the Answer was as often, They thought it some very good Sort of foreign Wine. But this was not all ; for it is of such a high cordial and wholesome Nature, that it may be justly called a Medicated Wine, at the same Time it is enjoyed as a pleasant drinkable Sort, either at Meals, or afterwards by Way of Regale. I am very sensible of the common Use of the Black Cherry in Brandy, stale Beer, Syrup, and Distillation ; but, if its excellent Service was truly known, in the Wine that may be made of it, I am certain, the Black Cherry would be highly esteemed, and much more made Use of, because its Liquor may be so managed, as to be little inferior to Port, nay, I believe I may venture to say, Tent : And so charming a dulco-aromatic Acid was this Juice improved to, that the same Gentleman often took a Pleasure in imposing it on a Stranger for Port-wine, till at last he ludicrously disclosed the Secret. But what could I say in Praise of the Red *May*, Duke, and Black Kerroon Cherries, which, amongst the numerous Catalogue

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of Sorts of Cherries, I think the choicest of all, for their delicate luscious Juice, and Quantity of wholesome pleasant Flesh; the first in the Month of *June*, on the Standard Tree; and the second also for its balsamic, healthful, and plentiful Liquor, that, in the Month of *July* likewise, on the Standard Tree, may be enjoyed at so cheap a Rate, in a bearing Year, as a Penny a Pound, as it happened in the Summer, 1741. Oh! how rich a Fruit is this Black Kerroon Cherry, eaten in a Morning fasting, off the Tree; which, for its noble, pleasant Taste, and laxative, antiscorbutic Quality, is most delicious. In *America*, it is said, the Cherries of the Woods grow to great Trees: There are two Sorts; one, which is rarely found, grows something like the Cornel-berry, but the common Cherry grows tall, and in Bunches, like *English* Currants, but much bigger; they taste bitterish sweet, and are as valuable, as our small black Cherries, for making Cherry-brandy, which will be of a crimson Colour; and are great Bearers.

C H A P. XXII.

Of the CEDAR-TREE.

THIS Tree is a coniferous Ever-green of the bigger Sort, large and tall, and bearing great roundish Cones of smooth Scales, standing upwards, the Leaves being small, narrow, and thick set together. This Tree, the learned *John Evelyn*, Esq; says, grows in all Extreame: In the moist *Barbados*, the hot *Bermudas*, the cold *New-England*, and even where the Snow lies almost half the Year; for so it does on Mount *Libanus*, from whence
Mr.

Mr. Evelyn received Seed from those few remaining Trees; Why then should it not thrive in *Old-England*? The Reason, as he believes is, for want of Industry to propagate it. It grows in the Bogs of *America*, and the Mountains of *Asia*; it seems there is no Place unnatural to it: He has frequently raised it of the Seeds, which he set like the Bay-berries; and we might have of the best Kind in the World from the *Summer-Islands*, though now almost exhausted there also, and so the most incomparable of that sacred Wood like to be quite destroyed by our Negligence, which is, by Nature, almost eternal: But what we have from *Barbados* and *Jamaica*, is a spurious Sort, and of so porous a Nature, as that Wine will soak through it; yet that they so call in *New-England*, is a lofty Grower, which being sawn into Planks, makes excellent and everlasting Flooring; they shingle their Houses with it, and use it in all their Edifices. It is to be wish'd there were more here, both to plant and work out. It is the *Oxycedrus* of *Lycia*, which the Architect *Vitruvius* describes, to have its Leaves resemble Cypress; the right *Phanician* Cedar has them like the Juniper, and it bears a Cone not so pointed, and distinct in Scales, as he has seen them from *Libanus* itself. 'Tis recorded, that, in the Temple of *Apollo* at *Utica*, there was Timber of near 2000 Years old. Besides which, 'tis said, that, in *Saguntum* in *Spain*, there was a Beam, in a certain Oratory, consecrated to *Diana*, which had been brought from *Zant*, 200 Years before the Destruction of *Troy*: The Statue of that Goddes, in the famous *Ephesian* Temple, was of this Material also; as was most of the Timber-work, in all their sacred Edifices. Mr. Evelyn wish'd, that Cedar might be brought into more common Use, especially for Vaneering and Moulding: Since, besides the Everlastingness of the Wood, not

obnoxious to Worms, and which would also be a Means to preserve Cloth, and other Ware, from Moths and Corruption, it would likewise be a Cure to reform the Malignity and Corrosiveness of the Air, and make *London*, as if it stood among the Spices of the happy *Arabia*, or the Prospects of Mount *Libanus*. And to my Knowledge there are several Rooms at this Time wainscotted with Cedar, 1741. Particularly, that up one Pair of Stairs, in the first House on the right Hand, going into *Crane-Court* in *Fleetstreet*. But this Wood is of so dry a Nature, that it will not endure to be fastened with Nails, from which it usually shrinks, therefore Pins of the same are better. 'Tis reported, that *Sesostris* (that antient King of *Egypt*) built a Ship with it of 280 Cubits, all gilded within and without. The Shittim, mentioned in Holy Writ, is believed to have been a Kind of Cedar, of which the more precious Utensils were formed; so that, when they said, *Cedra digna*, the Meaning was, *worthy of Eternity*. The Almug Trees mentioned, 2 *Chron.* ii. 8. to grow in *Libanon*, Mr. *Evelyn* thinks were Cedar; and, as he says, the *Chaldee* Paraphrase translates it Cedar. Juniper is also reckon'd a Sort of Cedar. The Mast of *Demetrius's* Galeas consisted but of one Cedar, and one of the Float, that wasted *Galgula's* Obelisks out of *Egypt*, was four Fathoms Circumference. 'Tis writ also of a Cedar growing in the Island of *Cyprus*, which was 130 Feet long, and eighteen in Diameter. There is a *Jewish* Tradition, cited by the learned *Bochart*, that *Noah* planted the Trees (he supposes Cedars) of which he afterwards built the Ark. It is excellent for Posts and Pillars, because of its direct Growth. Mr. *Evelyn* laments the Neglect of several Woods of this Tree.

Cedar continued. The red Cedar in *America*,
is

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is an Ever-green, that on the Salts grows on sandy Banks, and that in Freshes is found on Swamps. Wainscot Tables, and many other Things, are made of this Wood, and much valued, for its delicious Smell. It is of long Duration, and for this Reason, they use it for Posts in and about Houses, and for making Sloops, and Boats, because the Worm won't meddle with it for many Years, and because its light Wood causes them to be good Sailors. From hence great Quantities may be exported, for here it has been so plenty that they have fenced Plantations in with it, and now use it, generally for Coffins, to bury their Dead in. Here is also a white Cedar, much like the other, in all other Respects, that grows very strait and easily rives, and splits; with which they make Masts, Yards, Booms, and Boltsprits, for this Wood is very tough, and so light, that though they make Shingles with it, for covering their Houses, yet it is of no Strain to the Roof, and never rots. It makes good Pails, Casks, and other Utensils, free from Leakage. The Bark of the red Cedar is employed to make the *Indians* Cabbins, and will firmly resist all Weathers.

C H A P. XXIII.

Of the SWEET-CHESNUT and HORSE-CHESNUT-TREE.

Chesnut. *Its Description. How many imported. What Trees best for Food or Timber. How prepared for Sowing.* This a nuciferous *European* Tree; containing, in one common Husk, several Nuts, whose outward Husk is eschinate and prickly; and hath long, smooth, deeply indented Leaves, the Husk containing three or four Nuts. Mr. Houghton

Houghton says, that in the Year 1695, being War-time, there were only twenty Bushels of these Nuts imported, tho' at another Time, he knew a Merchant, that sold to a Woman, who kept a Stall in *Leaden-Hall* Market, a Ship Load for 400 Pounds; and he was paid honestly for them by her, and five more that joined with her: And he further says, that he doubts not, but there come yearly many more; for what are them among so many Chesnut-Eaters in *England*? *Pliny* reckons many Kinds of Chesnuts about *Tarentum* and *Naples*; but we commend those of *Portugal* and *Bayonne*, chusing the largest, brown, and most ponderous Fruit, such as *Pliny* calls *Cortivæ*; but the lesser ones to raise for Timber. They are produced best by Sowing; previous to which, let the Nuts be first spread to sweat; then cover them in Sand, A Month being past, plunge them in Water, reject the Swimmers; being dried for thirty Days more, sand them again; and to the Water-ordeal; as before. Being thus treated, 'till the Beginning of Spring, or in *November*, set them like Beans, and, as some, drench'd for a Night, or more, in new Milk.

How to sow Chesnuts. From whence Chesnuts came; and their Progress. Their quick Growth when well managed. Transplanting. When the Chesnut is set, it should be put into a Hole with the Point upmost, as Tulips; one in a Hole will do, if tried as before, nor will any of them fail, unless by some Accident: But, being come up, they thrive best unremov'd, making a great Stand, for at least two Years, upon every Transplanting: Yet, if you must needs alter their Station, do it about *November*, and that into a light friable Ground, or moist Gravel; though they will grow in Clay, Sand, and all mixed Soils, upon exposed and bleak Places, and the pendent Declivities of Hills to the
North

Of the CHESNUT-TREE. 135

North, in dry airy Places, and sometimes near Marshes and Waters: But they affect no other Compost, save what their own Leaves afford them, and are more patient of Cold than Heat. And, as for Sowing in the Nursery, treat them as you are taught in the Walnut. If they are set in Autumn, or Winter, inter them within their Husks, which, being every way armed, are a good Protection against the Mouse, and a providential Integument. *Cæsar* transported them from *Sardinia* first into *Italy*, whence they were propagated into *France*, and thence among us: An Encouragement to make such Experiments out of foreign Countries. Some sow them confusedly in the Thoroughs or Furrows like the Acorn, and govern them as the Oak; but then should the Ground be broken up betwixt *November* and *February*; and, when they spring, be cleansed at two Feet asunder, after two Years Growth. Likewise may Coppices of Chesnuts be wonderfully increased and thickened by laying the tender and young Branches; but such as spring from the Nuts and Marrons are best of all, and will thrive exceedingly, if (being let stand without Removing) the Ground be stirred, and loosened about their Roots, for two or three of the first Years, and the superfluous Wood trimmed away; and indeed, for good Trees, they should be stript up after the first Year's Removal. They also shoot into gallant Poles from a felled Stem. Thus will you have a Coppice, ready for Felling, within eight Years; which (besides many other Uses) will yield you incomparable Poles for any Work of the Garden, Vineyard, or Hop-yard, 'till the next Cutting; and if the Tree like the Ground, it will, in ten or twelve Years, grow to a Kind of Timber, and bear plentiful Fruit: There were some Chesnut-trees transplanted as big as one's Arm, their Heads cut off at five or six Feet.

Feet high ; but they came on at Leisure. In all Plantations for Avenues, you may set them from thirty to ten Feet Distance ; though they will grow much nearer, and shoot into Poles, if (being tender) you cultivate them like the Ash ; the Nature of whose Shade it resembles, since nothing affects much to grow under it. Some say, that the young Chesnut-trees should not be pruned, or touched, with any Edge-tool for the first three or four Years, but rather cropp'd or broken off ; which is left to Experiments.

Grafting and Inoculating the Horse-Chesnut. Its Character and Place from whence brought. The Use of Chesnut-tree. A great Forest near London, and guess where it was. Chesnut. The farther Use of Chesnut-trees. Water at their Roots spoils them. Its wish'd we did more universally propagate the Horse-chesnut, which, being easily increased from Layers, grows into a goodly Standard, and bears a most glorious Flower, even in our cold Country ; and Fruit to, as may be seen at Sir William *Alburs's* at *Highbate*, and several other Places ; but especially at the Bishop of *London's*, at *Fulham*. This is much used for Avenues, in *France*, and now in *England* too : There are a great many young ones at *Chelsea-College*. It was first brought from *Constantinople* to *Vienna*, thence into *Italy*, and so to *France* ; but to us from the *Levant*, and flourishes so well, and grows so goodly a Tree in competent Time, that from this alone we might have ample Encouragement to denizon other Strangers among us. There is a very fine one in the Pest-house Garden near *Old-street*, and another not far from the Ice-house under the Shadow of the Observatory in *Greenwich Park*. But this Tree, in my Opinion, is put to as good Use as any at *Ashridge Park* in *Bucks*, where they stand in a fine ornamental Manner at about 10 Feet asunder,

der, as Posts for fastening Rails and Pails to, as an Inclosure to this Park; and at the same Time grow very fast into high large Bodies and yearly bear a serviceable Fruit for feeding Deer and Swine in great Quantities; and which may be made still much more serviceable if the Nuts are soaked in Water, as I have directed in my first Part; for, by this Means, Thousands may be made agreeably sweet to the Cattle in a little Time, and for hardly any Charge, that before were naturally bitter, and would not answer the Purpose of Fattening near so well. The sweet or *Portugal* Chesnut-tree is (next the Oak) one of the most sought after by the Carpenter and Joiner: It hath formerly built a good Part of our ancient Houses at *London*, and therefore it was thought to grow in some Woods near the Town: For in the Description of *London*, written by *Fitz-Williams* in the Reign of *Henry II*, he speaks of a very noble and large Forest, which grew on the Boreal Part of it: A very goodly Thing, it seems, and as well stored with all Sorts of Venison! Perhaps *Epping*, or, as formerly called, *Waltham* Forest, or rather *Enfield Chase*, may be a Part of this Forest, as also *Northaw* and *Chestnut* Commons, with *Theobalds* Park; for in that Park I have seen some Chesnut-trees, and near *Chestnut*-House, built by Cardinal *Wolsey*, in the same Parish with *Theobalds*, a very great and high Sweet Chesnut-tree; and the *Four Swans* Inn at *Waltham Cross*, in the same Parish, was most of it built with Chesnut, and, for aught I know, most of the old Houses thereabout; and some think the Parish took its Name from these Trees. This Sweet Chesnut affords the best Stakes and Poles for Palisadoes, Pediments for Vine-props, and Hoops, also for Mill-timber and Water-works, and when it may lie buried; but, if Water touch the Roots of the

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growing Trees, it spoils both Fruit and Timber. These Trees are so prevalent against Cold, that, where they stand, they defend other Plantations from Injuries of the severest Frosts; and, being planted in Hedge-rows, or for Avenues for Country-houses, they are a magnificent Ornament.

The further Use of sweet Chesnut-trees. The Coals. The Fruit. 'Tis good Food. How to preserve them. Their Leaves. The Use of Chesnuts in Physic. Besides the Uses of the Chesnut-tree before-mentioned, the Timber does well for Columns, Tables, Chests, Chairs, Stools, and Bedsteads; for Tubs and Wine-casks, which it preserves with the least Tincture of the Wood, of any whatsoever: If the Timber be dipp'd in scalding Oil, and well pitched, it becomes excellently durable; but otherwise (contrary to the Oak) it will make a fair Shew outwardly, when it is all rotten within; but, 'tis said, before they break (by Reason of a Brittleness) they will give Warning by crackling. Formerly they made consultatory Staves of this Tree; and the variegated Rods, which *Jacob* peeled to lay in the Troughs, and impress a Fancy in his Father-in-law's conceiving Ewes, were of this Material. The Coals are excellent for the Smith, being soon kindled, and as soon extinguished; but the Ashes will stain the Linnen, if a Lee be made of them, and is washed therein. As for the Fruit, 'tis better to beat it from the Tree, some little Time before they are ready to fall of themselves: Thus they will the better keep; otherwise you must smoak-dry them. They are highly commended for Food, and preferred to Cole and Bacon, yea, Beans also, instead of which, they boil them, in *Italy*, with their Bacon; and, in *Virgil's* Time, they eat them with Milk and Cheese. The best Tables, in *France* and *Italy*, make them a Service, eating them with Salt and Wine, or in Juice of Lemons

Lemons and Sugar, being first roasted in Embers ; and, doubtless, we might propagate their Use, being a Food so cheap and so lasting. In *Italy*, they also boil them in Wine, and then smoak them a little ; these they call Geese ; those of *Piedmont* add Fennel, Cinnamon, and Nutmeg to their Wine ; but first they peel them. Others macerate them in Rose-water, and sprinkle them with grated Parmegiano, and so fry them in fresh Butter ; a Delicate ! How we here use them in stewed Meats and Beatil Pyes, our *French* Cooks teach us ; and this is, in Truth, the very best Use of their Fruit, and very commendable ; for it is found, that the Eating of them raw, or in Bread (as they do much about *Limosin*) is apt to swell the Belly, though without any other Inconvenience, as can be learned, and yet some condemn them, as dangerous to such as are subject to the Gravel in the Kidneys ; although, sure, where they make them their common Food, they do not find it so. The best Way to preserve them is, to keep them in earthen Vessels in a cold Place ; some lay them in a Siroak-loft ; others, in dry Barley-straw ; others, in Sand, &c. The Leaves of the sweet Chesnut-tree make very wholesome Mat-tresses to lie on, and they are good Litter for Cattle ; for those leafy Beds, for the crackling Noise they make, when one turns upon them, the *French* call them—*Lits du Parlement*.—Lastly, The Flower of Chesnuts, made into an Electuary, with Honey, is an approved Remedy against the Spitting of Blood, and the Cough ; and a Decoc-tion of the Rind of the Tree tinctures Hair of a golden Colour, esteemed a Beauty in some Coun-tries. In *London*, we boil them, 'till they be some-what soft, which will make the Shells come off easily, and then we eat them warm, or cold, and they are pleasant enough ; and surely, if, thus

prepared, they were eaten with Butter and Vinegar, and Pepper, as we eat Potatoes, they would be very acceptable.

C H A P. XXIV.

Of the JUNIPER-TREE.

I*TS Description. Three Sorts. It is thought to be a Bastard-Cedar. How propagated. A brave Arbour and Hedge of it.* It is a bacciferous, or berry-bearing, Tree or Shrub, whose Leaves are intire, of smooth Edges, small and slender, and prickly at the End; of a pleasant Scent, producing blue Berries. Mr. *Eveleyn* says, there are three Sorts, Male, Female, and Dwarf; whereof one is much taller, and much fitter for Improvement. The Wood is yellow, and, being cut in *March*, sweet as Cedar, whereof it is accounted a spurious Kind; all of them difficult to remove with Success; nor will they prosper, if much shaded, or over dripped. He has raised Abundance of them from their Seeds (neither watering nor dunging the Soil) which, in two Months, will peep, and, being governed like the Cypress, apt for all the Employments of that beautiful Tree: To make it grow tall, prune and cleanse it to the very Stem. The Male is best. The discreet Loosening the Earth about its Roots makes it suddenly spread into a Bush, fit for a thousand pretty Uses: For coming to be much unlike that which grows wild, that is subject to the Treading and Cropping of Cattle, &c. It may be formed into most beautiful and serviceable Hedges. There was an Arbour formed of this, that three Persons might sit in: It was seven Feet square, and eleven high, and would certainly have been of a much greater

greater Altitude, and farther Spreading, were it not continually kept shorn : But what is most considerable, is the little Time since it was planted, being then hardly ten Years ; and then it was brought, out of the Common, a slender Bush, of about two Feet high. Mr. *Evelyn* mingled them with Cypress, and they would perfectly become their Stations, where they might enjoy the Sun, and may very properly be set, where Cypress does not so well thrive, namely, in such Gardens and Courts, as are open to the Eddy Winds, which, indeed, a little discolour our Junipers, when they blow Easterly towards the Spring ; but they constantly recover again ; and, besides, the Shrub is tonfile, that is to say, it may be shorn into any Form. The Berries afford (besides, a tolerable Pepper) one of the most universal Remedies in the World : The Berry, being swallowed only, instantly appeaseth the Wind-cholic ; and, in Decoction, is most sovereign against an inveterate Cough ; they are of rare Effect, being steeped in Beer. The Water is a Specific against Gravel and Stone ; but all is comprehended in the Virtue of its Electuary, which he often made for the Poor against the Stone, Rheum, Phthisic, Dropsy, Jaundice, and inward Imposthumes ; nay, Palsy, Gout, and Plague itself, taken like Venice treacle. Of the extracted Oil, with that of Nuts, is made an excellent good Varnish for Pictures, for Woodwork, and to preserve polish'd Iron from the Rust. The Gum is good to rub on Parchment, or Paper, to make it bear Ink ; and the Coals, which are made of the Wood, endure the longest of any. If it arrive to full Growth, it is Timber for many curious Works, for Tables, Chests, small Carvings, and Images ; Spoons, wholesome to the Mouth ; Spits to roast Meat on, to which it gives a rare Taste ; but it should be of old and dry Wood ;

Wood; nay, it has been retorded, in a Book, that some has been large enough for Rafters and Beams. The very Chips render a very wholesome Perfume within Doors, as well as the dusty Blossoms in Spring-time without. When Women chide their Husbands for along While together, it is commonly said, they give them a *Juniper Lecture*; which, I am informed, is a Comparison taken from the long Lasting of the Live-coals of that Wood, not from its sweet Smell: But Comparisons run not upon All-four. The Psalmist, *Psalms* cxx. *Ver. 3 and 4.* advises to give unto the false Tongue *sharp Arrows of the Mighty and Coals of Juniper*. There are many Juniper-bushes, that grow (almost like our Furzes) on *St. Leonard's Common*, about six Miles from *Gaddeſden*, that yearly yield great Quantities of Berries, and become a considerable Profit to the Poor, who have a Right to gather them. It is this ever-green Bush, that produces three Sorts of Berries on it, at one and the same Time; one Sort of a Year's Age, another of two, and another of three; and it is those of three Years old, that they gather, when ripe, about , and generally sell them on the Spot, for Two-pence Half-penny, Three-pence, or Three-pence Half-penny *per Pound*; for these vary chiefly, on Account of hard frosty Winters, which sometimes much damage them, as it happened in 1739.

C H A P. XXV.

Of the HASEL, or common SMALL-NUT-TREE, and FILL-BEARD.

HASEL, how best raised, and when. Transplanting and Graffing. What Soil is best. Good for

for Coppices. *Great Nuts at certain Places.* The Hasel is best raised from Nuts (although they may also arise by Suckers and Layers) which sow, like Maste, in a pretty deep Furrow, toward the End of *February*; or treat them, as instructed in the *Walnut*: Light Ground may immediately be sown, and harrowed in very accurately; but, if Clay, plow it earlier, and let it be sufficiently mellowed by the Frosts; and then, the third Year, cut your Trees near to the Ground with a sharp Bill: But, for a Grove for Pleasure, plant them in Fosses at a Yard's Distance, and cut them within half a Yard of the Earth, dressing them for three or four Springs and Autumns, by only loosening the Mould a little about their Roots. Others set the Nuts by Hand at a Foot Distance, to be transplanted the third Year at a Yard asunder. Do this, when Winter is far advanced, because they are exceedingly obnoxious to the Frosts, nor will they sprout 'till the Spring; besides, Vermin greatly devour them: Preserve them, therefore, moist, not mouldy, by laying them in their own dry Leaves, or in Sand, 'till *January*; from whence they thrive very well, the Shoots being like small Wands and Switches, or somewhat bigger; and such as have drawn divers hairy Twigs, which are by no Means to be disbranched, no more than their Roots, unless by a very sparing and discreet Hand. Thus your Coppice of Hasels, being planted about Autumn, may be cut within three or four Inches of the Ground the Spring following, which the new Cion will suddenly repair, in Clusters and Tufts of fair Poles twenty, and sometimes thirty, Feet long. But Mr. *Evelyn* would spare them two or three Years, when they have strong Hold, and may be cut close to the Earth, the improsperous and feeble ones especially. Thus are Fill-beards to be treated, and both of them improved much
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by Transplanting, but chiefly by Graffing; and, it may be, Fill-beards and Almonds may be improved by more elegant Experiments. For the Place, they, above all, affect cold, barren, dry, and sandy Grounds; also Mountains, and even rocky Soils produce them; but more plentifully, if somewhat moist, dankish, and mossy, as in the fresher Bottoms, and Sides of Hills, Holts, and in Hedge-rows. Such as are maintained for Coppices, may, after twelve Years, be felled the first Time; the next, at seven or eight, &c. for by this Period their Roots will be compleatly vigorous. You may plant them from *October* to *January*, provided they are carefully weeded, 'till they have taken fast Hold; and there is not, among all our Store, a more profitable Wood for Coppices, and therefore good Husbands should store them with it. Methinks, those who set Nuts, should, by a Sieve, or Picking, get the largest they can; and I think, the largest I ever saw, grew in a Garden next the *Bowling-green-yard*, at *Chebbunt*, in *Hertfordshire*; which Parish, of late, grows famous for Nurseries. But the most famous open Places, for these Nuts, are *Whittle-bury-Forest* and some others, in *Bucks* and *Northamptonshire*; from whence they are every Year brought, and sold at *Dunstable*, and other Places on the *London* great Road: And so much are these Small-nuts in Request, that, tho' they grew in Plenty, in 1741, yet were they sold for eight Shillings a Bushel, by the Carriers, at *Dunstable* aforesaid; for, in this Forest, they commonly let them stand 'till ripe, and then shake the Nuts down; so that here their largest Sort of Nuts grow in the utmost Perfection.

The Use of Hasel. To thicken Woods. The Use of the Hasel is for Poles, Spars, Hoops, Angling-rods, Faggots, Cudgels, Coals, and Springes to catch

catch Birds; and it makes one of the best Coals, once used for Gun-powder, being very fine and light, 'till they found Alder to be more fit: There is no Wood which purifies Wine sooner than the Chips of Hasel; also for Withs and Bands. The Coals are used by the Painter to draw with, like those of Sallow: Lastly, for Riding-switches, and divinatory Rods for finding out Minerals, if that Tradition be no Imposture. But the most signal Honour it ever was employed in, was that of Hurdles; not only for folding our innocent Sheep, but for making Walls for one of the first Christian Oratories, *viz.* at *Glastonbury*, founded by *St. Joseph of Arimathea*; and the Walls of this Kind, instead of Laths and Puncheons, superinduced with a coarse Mortar made of Loam and Straw, do still inclose divers Cottages, Sheds, and Out-Houses in the Country; and 'tis strong and lasting for such Purposes, whole or cleft; and ample Inclosures of Courts and Gardens have been so secured. There is a compendious Expedient for the Thickening of Coppices which are too transparent, by laying of a Sampler, or Pole of a Hasel, Ash, Poplar, &c. of twenty or thirty Feet in Length, the Head a little lopp'd, into the Ground, giving it a Chop near the Foot to make it lie easy; this, fastened to the Earth with a Hook or two, and covered with some fresh Mould at a competent Depth (as Gardeners lay their Carnations) will produce a great many Suckers, thicken and furnish a Coppice speedily. But, besides these Small-nuts that grow in *England*, there are great Quantities imported yearly from *Spain* and *Portugal*, of a larger Sort, which, by the Hawkers, are called *Spanish* Fill-beards, that have, for the most Part, a very thin Shell, and pleasant great Kernel. To conclude, I must not pass over one other Perfection of the Wood of the Hasel, and that is, what I learned

of a Maltster, near *Southampton*, in 1738; who told me, this Wood, above all others, when cut two Years, will burn well, and dry Malt both pale and sweet, which no other Wood, as he knew of, would, because this Wood has so thin a Rind, and is of so soft a Nature, that it quickly burns away, without sending up that pernicious Smoke, as almost all others are incident to. See my first Part, where I have been very particular in Writing on the *Hasel*. To this I add, that, in *Wales* in the Isle of *Anglesey*, there were several Trees dug out of the Ground, and *Hasel*-nuts with them. The Wood was as black as Ebony, and the Nuts sound, Kernels in them. Some thought, they lay buried there, since the *Romans* Time: Others, that they fell of themselves, and, being buried in a Marsh-ground, the bituminous Substance of it kept them from Putrefaction.

CHAP. XXVI.

Of the PEAR-TREE.

AS this noble Tree, for the most Part, grows in a pyramidical Form, I am surprized it is not more planted, as well for Ornament, as Profit, for it will very well answer both those great Ends; and more especially so, if planted for Avenues, Vistoes, and defensive shady Walks: In which Mode, its fine, white, sweet Blossoms will perfume the Air, and become a very pleasant Sight to its Beholders; but above all, for its charming luscious Fruit, that, if of the right Sort, will, as it were, melt in the Mouth, and yield a Sugar Taste, for which Reason, that excellent *French* Pear, called *L'Buer D'Roy*, is, in *English*, named, the

the *King's Butter-pear* : And of several *French* Pears, as well as the *Burgamot*, Pound-pears, and some others, I have them now growing in Rows on the Grass-Balks of my plowed Fields, which I never knew any other plant, besides myself, in so public a Manner : But it pleases me to see these Standard Pear-trees produce early and late Fruit, in the sultry dry Seasons ; and more, when I can pleasure my Plough-folks, and Hay-makers, and Reapers, with the Enjoyment of these vinous Pears in such hot Weather, off the Trees. But their Pleasure and Profit does not end here. With my large, fine, golden-coloured Orange Pear, in a plentiful Year, I make a most charming Perry, whose Liquor is so near the Juice of an Orange in its Smell, that, on holding one's Nose over the Bung-hole of the Cask it is put in, the Scent is nicely counterfeited. Next to these, the Warden comes in for a considerable Share of Profit and Pleasure, on Account of their furnishing our Tables, in the Winter and Spring Seasons, with this serviceable baking Fruit, that in Pyes, and other Forms, become a Sort of Sweat-meat, or Dyfart, and, in the common Way of preparing them, often supply the Place of Bread and Meat, by their agreeable nourishing Quality. Lastly, the Wood of this Tree will pay better than Beech, and almost as well as some Ash ; for, if it is felled at a right Age, the Turner and Cabinet-maker will give nine Pence a Foot. The Pear must have an open Air, Sun, and good Ground, that the Fruit, by the Goodness of the Ground, may arrive to their due Bigness : By the Heat of the Sun to its Pleasantness to the Eye, and to its desired Gratefulness in the Mouth. They have the greatest Occasion for the Sun, to warm the Earth wherein they stand planted, or else their Roots being too much cooled, would grow sick and die. If they over-grow with

Moss, they must be made clean after Rain; by brushing and rubbing of them, which refresheth them mightily. For a Compost to plant Trees in, take the following, as invented by a *Dutch* Gardener, viz. Mix four or five Loads of Men's Dung grown stale, with one Tun of unslack'd Lime, that has been spread in the open Air for a Night or two, and sprinkled with a little Water, so that it may fall asunder into Flour; further, take three Tun of Clay, and four Country Waggon-loads of Cow-dung; being all well mixed together, it must lie on a Heap for a Quarter of a Year, and rot: Then turn it, and so let it lie till you have Occasion to use it. When you will use this, you must dig a Hole, according to the Bigness of the Tree you will plant, and fill it up with the said Ground; so that the Roots be underneath, and above, and every where, covered therewith, about four or five Inches; when this is done, you must fill the rest up with the Soil of the Garden-Ground. After it is filled up, you must cheak the Tree with your Hand, that the Earth may sufficiently stick to the Roots, which, if observed, your Trees will be very fruitful, and never be over-grown with Moss; which is the Plague of low, morassy Ground. In the mean Time, we may easily conceive, that the uppermost Earth is the best of all Ground whatsoever; for that which is deep in the Ground, has not felt the Heat of the Sun, nor received the sweet Moisture of Rain or Dew. For this Reason, it is best to leave the Holes, wherein they will plant their Trees, open for a whole Year, or turn it over three or four Times that it may be the better broken before they plant their Trees, because the lower Part of these Holes must of Necessity thereby grow better, being much mended by the Beams of the Sun, and Rain: This must then be well mixed with Dungs, as also that which you dug out of the Hole; and,

and, with both, you must fill up the Hole half a Foot higher than the common Ground, because the Dung, consuming the Ground, sinks daily. Yet, above all, you must take Care, that, in planting, the Dung, or great Heaps thereof, may not touch the Roots of your Trees, being too sharp for them. In moist Ground, you must not dig your Holes too deep, but rather heighten your Ground, and take Care, that, before you plant your Trees, you may cut with a Knife the Roots that shoot down, and chiefly the Pin-roots, or else you must put Brushes underneath, that the Water may shoot off, and the Root not strike too deep into the cold Ground. When you plant them, you must take Care that you put no Tree in the same Place, where Trees of the same Sort have been planted before, for, if you do, they will not grow and thrive. As to the Raising of this Sort of Trees by Seeds, see my Chapter on them in my First Part, where I have set down the quickest Way of doing it, for none can enjoy this fine Fruit-tree too soon, because it challengeth the best Place in the Orchard, as being one of the greatest Beauties of it. It is said, that, in some Countries, it so prospereth, with often Digging, and much Moisture, that it never loseth its Flower; Ox-Dung, applied, is thought to make great and massy Pears; some put a little Ashes with it, to make their Taste the pleasanter. If you plant young Trees, let them be four Years old, but some will take the fairest Branches they can find upon the Tree, and set them, and when these, or those raised from Seed, are to be grafted, the Season is *March* and *April*; and so apt is this Tree to take a Graft, that it will receive it even in Blossom-time, to Success. The Pear may be grafted upon the Quince, the Pomegranate, the Almond, the Apple, and the Mulberry-tree. If on the last, the Pear will be red. Let your Pear-trees stand
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thirty Feet asunder, and be sure to put some Fern, Weeds, or wet Straw about the Tree, to keep it moist, and prevent the Sun or Wind from drying the Ground too much, for the first Year, after Planting, is the most dangerous of all others, and therefore the young Tree calls for the greater Security; to which End, lay about two Quarts of any Wood, or Peat Ashes, round the Roots of it, at a little Distance from the Body; and to make their Virtue get the sooner down, give the Earth a little Loosening first, that the Rains and Dews may wash, and better dissolve the Ashes; repeat this twice a Year, the first Time when the Trees are in Blossom, and the next at *Midsummer*. But, if you don't think fit to make Use of this Manure, you may soak the same in Water, and strew the Liquor, or Lee, on the Trees Roots, instead of it, which answer the same End. You may make Use of several Ways to keep your Pears. Some dip their Stalks in boiling Pitch, and afterwards hang them up; others keep them in new boiled Wine, or else in a close Vessel; others in Sand; and some again covered with Barley, Wheat, or Chaff; some are of Opinion, that there is no kind of Fruit, but may be preserved in Honey. An old Author says, that some Sorts of Land, on which the Apple-tree will not prosper well, the Pear-tree will, as the cold, gravelly, clayish, wild, and stony Land, on which this Tree, especially the more wild Sort of Pear, will thrive exceeding well:

*The Pear, when it has Room enough to spread,
Where it has Warmth sufficient over Head,
If it be seconded by the wet Ground,
With Blossoms, and swelling Fruits, will be crown'd.*

Perry, says he, being near of Kin, for its Excellency, to Cyder, and the Pear-tree far exceeding the Apple-tree, for its Greatness and Fruitfulness;
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there having been one very lately, not far from *Ross* in *Herefordshire*, that was as wide in the Circumference, as three Men could encompass with their extended Arms, and of so large a Head, that the Fruit of it yielded seven Hogsheads of Perry in one Year, as I was credibly informed. The choaky Pears of *Worcestershire*, and those adjacent Parts, or the Horse-pear, and Bareland-pear, and *Bosbury* Pear, are esteemed the best for the Press, bearing almost their Weight of excellent Liquor. The more coloured any Pear is, the better. To this, I add, the Case of a Gentleman, who lives about eight Miles from *Little Gaddesden*, that was relieved by Drinking the Juice of the Pear, thus: As he was on the Jury, at *Hereford*, he was there taken so ill with violent Pains of the Gravel, that obliged him directly to return Home, above ten Miles from the Place, when a truly noble Lord, hearing of this his Neighbour's Misfortune, sent for him, and persuaded him to drink a Bottle of seven Years old Perry, which in a little Time passed him, and brought away several little Stones, and, on Drinking another Bottle, he was presently cured. But I shall enlarge no further here, because I have been the more particular on the Pear, in my first Book on Cyder, intitled, *The Modern Cyderist*, &c. Except the few Lines that follow.—Pears are near of a Nature with Apples, and are of as great Use in the Kitchen and Conservatory: They nourish more, especially the Warden, which baked, and well sweetened with Sugar, is held to be one of the best Restoratives to a consumptive Man. The Wine made of them, is more full of Spirit than that of the Apple, and esteem'd the greater Cordial.

I was told at *Canterbury*, by a Cabinet-maker, that this Wood makes fine Sugar-dishes, and other Turners-ware; and also delicate Frames for Chairs; but

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but it is apt to rot in a little Time by the Worm, even sooner than Beech. It is likewise excellent to make a Faneer, to lay on Deal Frames for Pictures; and then, if it is well strained and polished, it will look like black Ebony. Its Boards make beautiful Dressers, Tables, Chests of Drawers, and many other Things; and its Wood will cut well after it has lain on the Ground a Year or two, in its whole Body, as the Sawyers tell me.

C H A P. XXVII.

Of the APPLE and CRAB-TREE.

ROCKY and stony Ground produces the best Cyder, &c. 'Tis apparent to the best Judges, that *Souham* Cyder exceeds all others in this Nation, both for its Strength, dulco-acid Taste, and wholesome Quality: A Truth, which the *Londoner*, when in that Part of the West, has sufficiently proved, by being unexpectedly inebriated with little more than a Quart of it; for, of the Strength of this Liquor he will not be convinced, 'till Trial has decided it; because, says he, our Town Cyder will sooner hurt the Belly than offend the Head; and why this West Country Cyder is better, than even that of *Herefordshire*, and all others (as far as I can understand) both foreign and domestic, in my humble Opinion, is owing to the Soil and Situation, where the Trees grow; for in *Somersetshire*, *Devonshire*, and *Cornwall*, I have seen many Foundations of Stone Rocks, which, being of a Marble, or Fire-stone Nature, lying very high, and mostly to the South, oblige all Trees planted thereon to grow and spread their Roots horizontally near the Surface, and consequently nearer the Sun's Influence; which so impregnates them with a strong Spirit, as furnishes the

the Fruit with a more potent vinous Juice, than that growing on Trees, whose Roots run deep into a more moist and Northern Soil: Thus, as the Soil is, so, in a great Measure, is the Fruit. Now there is no Fruit-tree in this whole Isle of *Great-Britain*, that is so universal, as the Apple-tree; there being but few Places, and but little Land, wherein it delighteth not; hardly any Place so cold or moist, hot or dry, but it will thrive and bear Fruit. Neither is there any Fruit-tree more easily propagated, nor any, that bears so great a Burthen of Fruit, as this and the Pear-tree do; therefore is the Planting and Increasing of them more to be encouraged and promoted, than of any other; considering also the Excellency of the Liquor extracted from its Fruit, which now is, by many, made in the greatest Perfection, since they have found out a Way to work, or cure, Cyder so well, as to keep in the Spirit of it; which, in our County of *Hertford*, most, or all, are ignorant of, and therefore can seldom enjoy their Cyder good above half a Year, unless they put Spirits and Sugar into it; and then it is never so healthful, nor pleasant, as in its original and pristine State. This has tempted me to write two Treatises of making Cyder, Perry, and made Wines, &c. that are almost ready for the Press; wherein I have also set forth the great and many healthful Qualities this Liquor abounds with, as they have been experienc'd by Dr. *Baynard*, and others. Nor can I forget the great Service, that I received myself from Cyder, in my Travels, in 1737, and 1738, when I was confined to proceed slowly in a dusty Road a long Time, in sultry Weather; which frequently brought me under a prodigious Thirst; and to drink their strong But, Brown, and Pale Beers, in *Kent*, and in the West-Country, was adding Fuel to the Fire, 'till I could enjoy the

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fooling Draughts of refreshing Cyder, which certainly is the greatest Quencher of Thirst of any other Liquor whatsoever. But I was very much surprized to find, at a Town about forty-five Miles from *London*, a Liquor sold, that so nearly counterfeited Cyder, that it was every Year sold for it, twenty Miles round the Place, without its true Nature being discovered: However, in the before-mentioned *Cyder-book*, I shall publish their Method, as I happened accidentally to be let into the Secret. But to return to my Subject: The Judgment of the Planter is of great Moment in the Choice and Position of the Soil and Place for the proper Sort of Fruit to grow in. This made the *Kentish* Men take to the Planting of the *Pippin* and *Codlin*, because no other Apple would prosper so well in that County. Cyder-fruit is best off a light Land, as the Winter long-keeping Apple is off a stiff Soil: So the *Pippin*, which, of all others, is the most subject to the Canker, is often brought under this Misfortune, when planted on light Land, and least, when in a heavy. I knew a Gentleman that was oblig'd to stock up a great many Apple-trees, that had been before his Time planted in a gravelly Soil, because they did not grow to any Perfection in this dry, hungry Earth; but, when Pear-trees succeeded them, they grew to Admiration. Land, lying to the South-East, is a most natural Situation for a Plantation of Fruit-trees, because, in Spring, the East-winds keep back a too forward Bud; and, in Autumn, the Morning Sun disperses the Fogs and cold Dews away, which thus preserves the Fruit from Chills: The Air, being warmed all Day by the Sun, is sufficient, in the Evening, to continue the same Heat.

The excellent Uses of the Parsnip Apple-tree. As to the odd Name of this Tree, I never heard a Reason

Reason for it; but so it is, that, in all my Travels, I never saw any of their Sort, except in this our Western Part of *Hertfordshire*, where, if a Farmer has not one of these growing in his Ground, he is thought unhappy; because it's not only a large-bodied Tree, but its Apple is also of a good Size; its Colour whitish, with Strakes of red; is always ripe in Harvest; and, as if it was design'd by Heaven as a Blessing in this Season, it yields a most pleasant Juice for eating raw, or making it into a delicate small Cyder for present Drinking; but its Pyes are second to none; for, in these, this Apple is rather a Sweat-meat, or Dysart, and therefore oftentimes preferred by our Harvest-men to Bread and Meat. It is likewise a great Saver of Cheese; for, if the Workman can but enjoy a cooling, luscious, refreshing Pasty of this Apple, he often flights his Bread and Cheese for it. In fine, this noble Apple, by its being eaten raw, or prepared in Pyes, or coddled and eaten in Milk, saves a great deal of Bread, Flesh, Cheese, and Drink to the Farmer. It's a soft, juicy Apple, seldom hanging longer on the Tree, than *Mid-September*: And, as it is one of the first-ripe Sort, and best of forward Apples, I have sent them several Times to *London*, where they have been accepted, as an agreeable Present, by my Friends. I have but two Trees of this Apple, a very young one, and an old one: The old one is perhaps, one of the largest Apple-trees in *England*, and, in the Year 1740, yielded me near thirty Bushels of Apples; but the young one grows in my Wood, where finding a Crab-stock, I grafted it with a Cion of this Tree: In a Word, there is no Farmer, that can conveniently have this Tree, should be without it; for they may believe me, who, for near thirty Years, have experienc'd it, that this Tree fully answers my Character of it; and, if I say it de-

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serves a better, I think I say no more, than the Truth.

The Virtue of Crab-juice. This Juice is asserted by some to make the strongest and best of Cyder, provided the Crabs come off a good Soil, are of a right Sort, the Liquor artfully made, and a due Age given it. An Experiment of this Kind, I have been told, happened at *Exeter*, where a Person made a Hoghead of it, and, whether by Mistake, or done on Purpose, I cannot say, but, according to the Relation, it was not broached 'till four Years End, when it proved the best of Cyder. Another Use of this Juice is, that it is serviceable to mix with that of Apples, to improve it with a brisk Taste and potent Quality; and, as a Proof of this, when I was at *Elminster* in *Somersetshire*, in 1737, I could get no Cyder there, but what was made with the *Jersey* Sweet-apple and Crab, or Wilding, mix'd together; and such Store do the Inhabitants of this Town set by their Wildings, that they value them equal to the best of Apples, as it appeared by their resenting the Theft of a loose Fellow, who, for stealing a Parcel of them, was forced to fly his Country, for Fear of a Prosecution, that he was threatened with. If People knew the Virtue of a Crab, says an old Doctor, they would value them more than they do; for old Verjuice is excellent to wash Wounds with, before the Plaister goes on, because it keeps back the Humours; and is no less useful for washing the Eyes, because it heals and strengthens sore and weak Eyes, kills the Scurvy in them, and eats off Keils. Another says, they are cold and moist, and help Inflammations, Burpings, and Scaldings, if presently applied, more especially if mix'd with Yeast of Beer. Inwardly, the Juice is good against Heat of the Stomach, Vomiting, and Fainting; and makes good Sauce, as being of the Vinegar-nature,

nature, and will serve as such, when old; and therefore is made use of in making the best mustard: It astringes the stomach; and makes, in many cases, a very good Gargarism, or, what may be plainer writ, a liquid Medicine to cleanse the Throat and Teeth with.

C H A P. XXVIII.

Of the BARBERRY-TREE.

THIS Tree is found growing in several of our inclosed Fields of *Herfordshire*, as a Standard, and in Stems; where some acquire a Body of near twelve Inches Diameter, yielding a great Quantity of pretty red Berries, that are not only ornamental on the Tree, but likewise after Pickling, and being kept in Glasses, are ready to be the same for gracing the Sides of Dishes of Meat, and giving a pleasant tart Taste to Sauces, and to Conserves. The Wood of this Tree is said to be such an Antidote against the Yellow Jaundice, that, if a Person constantly feeds himself with a Spoon made of it, it will prevent and cure this Disease, while it is in its Infancy. There are several Sorts of Barberries; but one used in common, and that best, which beareth its Fruit without Stones; it's said, there is a Sort, whose Berries are twice as big as the common Kind, and more excellent to preserve. This Tree has an ill Name, in our Country, for attracting Blights to the Corn that grows near it; insomuch, that an ignorant, malicious Farmer of *Fresheden*, by *Gaddefden*, about the Year 1720, conceived such a Hatred against a large one, that grew in his Neighbour's Ground, very near his, that, for this very Reason, he poured several Pails of scalding Water on

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on its Roots, in the Night-season, at different Times, 'till he killed it. Were there, indeed, many Trees, that stood close together, it's possible, they might contribute to such a Misfortune; but, in my humble Opinion, one can be of no Effect; however, most of our Countrymen affirm its Damage.

C H A P. XXIX.

Of the ALMOND-TREE.

THIS is an *European* Tree, containing, in one common Husk, one Nut, having a Covering that is thick, pulpy, and oily; being a lesser Tree than the Walnut; having long, narrow, serrate Leaves, and a smooth Kernel. There are Sweet and Bitter Almonds, from both which, says Mr. *Houghton*, is drawn an Oil; that of the Bitter is used, chiefly, as a Cosmetic, or Beautifier of the Skin; the Oil of the Sweet is very much used for Medicine, for Diseases of the Lungs and Throat, for the Pleurisy, for Costiveness, Tumours, Gravel and Stone, and many other Cases. The Bitter Almonds, beaten fine, are very much used by the Ladies, in Water, to wash their Hands with; also the Cakes of the Sweet Almonds, which are made by pressing the Oil from them, are beaten to Powder for the same Purpose; and some add the Oil to it, which very much improves it. With Sweet Almonds blanched (that is, put into warm Water a while, which will make them slip out of their Shells) and Water, is made Almond-milk, which is used in divers of the aforesaid Cases; and sometimes, with them and the cold Seeds, are made Emulsions, to be sweetened with Syrups, or Sugar, to which is added Pre-
red

red Pearl, and what else the Physician pleases, to drink in Fevers. This physical Use consumes but few, a great many are eaten raw with Raisins : But the great Consumption of the Sweet Almonds is by the Confectioners; for, with them, they make chiefly their Macaroons and March-panes, which are Things greatly consum'd in this Kingdom : I have heard some imagine, that, in dear Times, Almonds are worked up with Cocoa-nuts, to make Chocolate with; which I cannot gainsay, but truly I cannot learn it is so, though I have made it my Enquiry. Of these Sweet Almonds there are two Sorts, *viz. Jordan*, which are large, long, and dear, and chiefly sold to eat with Raisins; the other are *Valencia* and *Barbary*, from which is the Oil extracted. I am, says Mr. *Houghton*, informed, that some of these Trees, with much Cost and Care, are entertained here, as Strangers, for Curiosity; but we have the Nuts so plentiful from Abroad, that 'tis not worth our While to make a Trade of planting them. — The biggest Standard Almond-tree, that ever I saw, was one that grew at the Bottom of *Gray's-Inn-Lane*, in the Alms-house Yard, for its high Body, I believe, measured a Foot Diameter, where it bore its fine scarlet early Blossoms, and then the Nuts : Since which, in my Travels, in 1736 and since, I've seen Almond-trees grow, in many Places, for the Sake of their charming Blossoms, I believe, more than their Wood, and bitter and sweet Nuts; for it is one of the first Tree-blooms, that is seen sometimes in the Spring-season. The Almond-tree, when very young, serves as a stock, to bud or graff the Peach, or Nectarine on; and accordingly, about *Chelsea*, and other Places, they raise many young Almond-trees in their common Nurseries, especially at *Brompton-Park*, every Year for Sale. There is a red Sort, and a white Sort

of

of this Tree ; but, as to the Nature of its Wood, I cannot say much of it. The Almond-tree will grow and flourish well in *England*, if planted in a warm Soil, and exposed to the Sun. It is properly grafted on the Fill-beard, and, when once it gets a-head, it grows a-pace : In Time, with good Diligence in applying Swine's Dung, mixed with Water, about the Roots, it beareth considerably. It flowers early, which, as I said before, is of a reddish Colour ; and, if for no other than this, it much graces an Orchard ; but it has been known to bear much Fruit, some bitter, some sweet, according to the Nature of the Tree and Graff ; by often Transplanting, the Nut grows the sweeter. This Tree, when it has attained a large Body and Head, has been known to bear several Bushels of Nuts on it at once ; for which Reason, and for the Sake of its Wood, for its beautiful early Blossoming, and for growing in poor, gravelly, and other indifferent Soils, it's surprizing to me, it is not more propagated ; but more especially, as I said before, for its transcendent Oil, and the Pleasantness of its delicate, nourishing Fruit.

C H A P. XXX.

Of the PLUM - TREE.

OF this Class are Plums, Damsons, and Bullaces, &c. The Plum-tree grows both as a Standard, and Wall-tree : But, as my Pen is mostly confined to the Timber-tree, I shall chiefly consider it as such, and take Notice of it as a Standard, of which there are many, that are seven or eight Inches square in their Bodies : The same I have seen, and may say, of the Damson and Bullace-trees, which grow into a very useful Wood

for

for the Turner, who, with it, makes Pepper-boxes, Sugar-boxes, and fine Instruments. The Spoon-maker also makes a great Consumption of this Wood, because it is much admired for its blackish red Colour, and the Hardness and Sweetness of the Wood; on which Accounts, when an old Plum-Tree is well hearted, they will give Eight-pence a Foot for it. The Plum, being of the Tree-kind, serves for inoculating on it Peaches, Apricots, and Nectarines; which, when planted in good Earth, arrives, sometimes, to a considerable Bigness in its Body, against a Wall; but bigger, when they grow as a Standard. At ——— near *Cranbrook*, in *Kent*, I saw, in the Year 1736, a Standard Nectarine-Tree, that had been inoculated on a Plum, which grew near a Sink-hole, almost at the Back-door of a House, in a well sheltered Place from the North-East Winds; here it got a Body, I believe, of six Inches square, and then had a good Quantity of Fruit on it. The Plum may be planted from *Alballows-tide* to *March*; if they are set in *February*, the Stones should be steeped in Lye three Days, that they may the sooner spring; they are also to be planted from the young Sets, that grow from the Bottom of the Tree. They prosper best in a rich, moist Ground, and in a cold Country; they are grafted toward the End of *March*, and are better in a cloven Stock, than in the Bark. In *January*, before the Gum begins to drop out, the Plum may be grafted on its own Stock, or upon the Almond. The Plum-Tree is little, or not at all, cut; but they must be cleansed from Filth and dry Wood, and of too much Wood, when the Sun cannot shine through them: They require good Ground, because they are free Blowers, or they will bear themselves to Death in a short time; and be sure to graft them, before they begin to bud. The finest Sorts are the

Prune-Jaune-Hastive, St. Julian, La Royal, Blue-Pordrigo, Drab d'Ore, Fotheringham or Sheen-Plum, Cbesson or Matchless, Rocbea-Corbon, Maitre-Claud, Rein-Claud, St. Katherine, Green-Gage, Orleans, Imperial, and Muscle. The three last are proper for Preserving, and may be planted against a North-Wall. The others require a good West or East Wall: Or, in sheltered Places, as Standards. Most of these are excellent Plums; but if too many are eaten raw, they'll cause Gripes and Flux. Damsons, as well as other Plums, may be dried in the Sun upon Lattices, Leads, or in an Oven; some so dip them before, either in Sea-water, or in Brine, and, after, dry them for Use all the Year after. But the Damson is in most Esteem with the Pastry-Cook, who preserves them by a Syrup, and are very agreeable to his Customers in Tarts all the Year following. And so plentiful are Damsons in some Years, that they are sold in the Country for twelve Pence a Bushel, as it happened at *Little Gaddesden*, and many other Places, in the Year 1741, after a very dry Summer.

C H A P. XXXI.

Of the QUINCE-TREE.

THE Quince-trees are of very great Use as well for their Fruit, as for their Fitness and Necessity to graft on; and though some pretend, that the Fruit, engrafted on them, receive some Twang thereof; yet we find that the Roughness of some Pears, with others of their Kind, doth not proceed from the Quince-Tree, but ought rather to be ascribed, either to the Moistness of the Ground, and coarse-Soil, or else, according to the Opinion

of

of some, to the Mixing of too much Dung among the Ground, when they were planted. In the mean time, we observe, that the more the Dung perishes, the more the Fruit loseth its Roughness, it still diminishing, as the Tree grows older. The *Barbary* Quince is good, but small. The *Lyons*, a large Yellow. The *Brunswick*, a large White. The *Portugal*, excellently good, and preferable to the rest. If this Tree is planted in a watery moist Ground, near, or at the Bottom of the Running of a Stable-yard, any time in the Winter, it will grow and thrive into a Body of about eight Inches Diameter; bearing a great Number of large, fine Quinces, which may be made use of in making a delicious Wine, or a Marmalade Sweet-meat, which is of so serviceable a Nature for stopping Fluxes, and other Uses, that many good Housewives make and keep it all the Year by them. They are easily propagated, and are of such ready Growth, that the Sets, that have been set in *February* or *March*, have born Fruit the Year after. They grow well in cold and moist Countries, in plain and hilly Grounds; and where they are to be set in dry Earth, they should be put into it in *October*. Many cut a Stick off their Head, and set it for good; but they are best grafted in the Stock, and not in the Bark, in the Months of *February* or *March*, and then the Quince-stock will receive a Cion of the Apple, Pear, Pomegranate, Service, &c. and greatly improve their Fruit. If they are often digged about their Roots, and watered in dry Seasons, and Ashes laid about their Bottoms, they will bear, early, a great Quantity of Fruit; but if this Piece of Husbandry is neglected, this Tree will be either barreh, or bear an insipid small Quince. Gather them in a dry Day, when the Moisture is off the Tree and Fruit, pluck them gently from the Stalks, and keep them in clean wheat Straw, laid or packed as thin as may

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be. Separate them a good Distance from other Fruit, because their Scent is offensive to it: You may pack them in dry Casks, but so as Air may come at them, for it is a great Preserver of them: All Dampness makes them mouldy and rot: You may pack them by Layings of Straw between them, and such as lie loose in your Fruit-lofts, turn them often. The Wine of them is to be made by grinding and pressing them, but their most common Use is best known in the Apple-pye, in which a Quince, two, or three, adds a most pleasant Flavour. As to the Nature of its Wood, I can compare it to nothing nearer than to the Pear-Tree. It's said by a certain Author, that the Quince may be increased by its Seeds, but sooner and better by its Off-sprouts. To have them in great Quantity, you must cut all off within an Inch of the Ground, in the Month of *March*, by which means they yield a great many Suckers or Shoots: When they are half a Foot high, you must heighten them up with good Ground, that they may take Root the sooner and better. But he says, as they take Root easily, you may increase them by Sticks; which I myself have done, and have several at this Time growing from the same.

C H A P. XXXII.

Of the MULBERRY-TREE.

THE Mulberry, of all other Trees, is accounted the surest Bearer, because it never blossm-eth till all cold Weather is past, and therefore is in Jest called wisest of Trees; so that, whenever you see the Mulberry begin to spring, you may be sure the cold Weather is at an end; yet is ripe with the
 ft. They dye the Hands (as *Pliny* says) with the
 Juice

Of the MULBERRY-TREE. 165

Juice of the ripe Berry, and wash it off with the green Berry : It changeth its Colour thrice (as *Ovid* alludes in his tragical History of *Pyramus* and *Tbibe*) first White, then Red, and lastly Black. It loveth hot Places and gravelly, and delights in Digging and Dunging, but not Watering : Its Root must be opened about *October*. It is set off the Stones, but then it often grows to the Wild : The best Planting is the Cion, and the Tops a Foot and a half long, smooth at both Ends, and rubbed over with Dung. The Place where you set your Sets, cover with Ashes mingled with Earth, but not above two or three Fingers thick. It is best set in *March*, and to remove it in *October* or *November*. It may be grafted on the Beech, or the white Poplar, either by grafting in the Stocks, or Inoculation ; and so shall the Berries be whiter. It is grafted also on the Fig and on the Elm, which in old Time they would not suffer for fear of Corrupting. Of the Mulberry is made a very noble Medicine for the Stomach, and for the Gout : They will longest endure kept in Glasses ; the Leaves do serve to feed Silkworms withal, whereof some make a great Gain. Accordingly, it was attempted at *Chelfea*, about twenty-five Years ago, but I don't hear it succeeded, I have seen a large Tree of this Sort growing in the *George-Inn* Yard in *Holbourn*, where some Part of it remains to this Day, 1741. And as to its Wood, it has Heart and Sap, that serves for Fanneering and other Uses. The black and white Berry, when gathered in Time, is a pleasant cooling Fruit ; and therefore this Tree is too valuable to be cut down, while it bears any Quantity of them, though it has a hard, brittle, serviceable Wood. In *America*, Mr. *Lawson* says, there are three Sorts of Mulberries growing in light rich Ground ; first, a common red Sort,
that

that is first ripe of any but Straw-berries, and is very sweet. These Trees grow wild, and make a fine Summer-shade to sit under. The Fruit are used in the Room of Currants and Raisins in Sauces; and, when pressed, yield a clear Crimson Liquor, which would make a rich Wine; the other Mulberries are smooth-leaved, and are the right Sort for Silk-worms. One has a common Fruit, the other bears a black small Berry, very sweet: Here the *Indians* have a Notion, that this Sort was a white Mulberry, and changed its Fruit. Its Wood is very durable; and where the Natives can get Locust-wood, they use this to make their Bows.

C H A P. XXXIII.

Of the WHITE and RED ELDER-BERRY TREE.

THERE are two Sorts of Elder-Trees, the one bearing a white Berry, the other a red. The White is a Sort that was first known in *Hertfordshire*, about thirty Years ago; since which, it has been propagated in many Places. I have, at this Time, several Hedges of the white and red Sort of my own Planting; and, by Request, I sent some Cuttings to my late good Friend and Relation, *Richard Screen*, Esq; at *Warley*, near *Bath*, in *Somersetshire*, where it now grows in a flourishing Condition, in a Garden next his Vineyard, joining the River *Avon*. It is a most noble Berry, for its being generally somewhat bigger than the Red, and making a superior Wine to it; a Wine, when rightly made with a good *Lisbon* Sugar, and a due Age given it, both in Casks and Bottles, will

will so nearly counterfeit the true *French Frontinac*, as hardly to be distinguished from it, as I have more particularly mentioned, in my Chapter of the *Elder*, in my First Book. But to enjoy this and the red Elder-berry, in the largest and greatest Perfection, there is a Way of doing it, according to that which was practised by the late Reverend and Ingenious Dr. *Brabin*, Minister of *St. Mary-Axe*, in *London*, and of *Berkhampstead*, *St. Peter's*, in *Hertfordshire*, as follows, viz. He entirely lopped off the Heads of several Elder-Trees in Winter, which should shoot again the first Summer, and, the second, would bear, by this means, a very large Berry: Or, when he did not take this Method, he made use of another, that was but little inferior to it; and this was, that, about *Christmas*, he would prune the old Wood out of a Tree, and leave in it only the last Year's Shoots for Bearing, and top them all to four Buds. Then, out of these large Berries, he would get a great deal of excellent Juice, with which he made a Liquor, by the Addition of Malt, that, by many of the Gentry, was preferred to White-Wine and Claret. Now the Manner how he did this, you have set down in my *Supplement* to the *London and Country Brewer*, at Page 49, where I have inserted the genuine Receipt, as it was given me by his chief Servant, who acted both as his Gardener and Brewer; for this Gentleman lived but three Miles distant from *Little Gaddesden*, and with whom I was acquainted. The Body of a Standard Elder-Tree has sometimes measured twelve Inches Diameter, and is so very hard and serviceable for making Combs, Cogs for Mill-wheels, and Knife-Handles, in Imitation of Box, that one is often taken for the other: It's likewise so useful for little Troughs, that the good Housewife employs it for holding Sugar to feed her Bees in hard Times, and preventing

venting their too early Flights in the Spring. It also supplies the Shoemaker with Pegs for Shoes : In short, for the many good Properties of the Elder-tree, in supplying the Mechanic, yielding an excellent Wine, for its salubrious Uses in Physic, and for yielding a burning Spirit for Lamps, by Distillation, it is a Tree of the greatest Excellence ; its Propagation is most easily performed by Seed, and by Cuttings, as I have shewn in my First Part.

C H A P. XXXIV.

Of the WHITE and BLACK
THORN TREE.

THE White-Thorn Tree is of such great and universal Service for many Uses, that it is planted by Farmers, Gardeners, and Gentlemen, in most Parts of *Great Britain and Ireland* ; and even encouraged by a Law, which indemnifies any for gathering its wild Sets in Woods, Fields, or Commons ; so that our Labouring-men get them before our Faces, in our inclosed Grounds, at a proper Time of the Year, without so much as asking our Leave for doing the same : Yet, as plenty as they are in the *Chiltun* Country, they are as scarce in Vale, open, Field-Lands ; and therefore it tempted a Gentleman of a good Estate, and who is now in the Commission of the Peace for Part of *Ailesbury Vale*, in *Bucks*, to make large Nurseries to raise the White-Thorn Set ; and, accordingly, he yearly sells vast Numbers of this Sort, to fence inclosed Grounds, to great Profit ; for there is hardly a Session passes, but what there is an Act of Parliament granted for inclosing little or more Land. In many Forests, Chaces, and Parks,

Parks, this Tree is very valuable for its Producing great Quantities of Haws, that furnish a Part of the Deer's Subsistence, in snowy and other scarce Seasons; and also by its astringent, warm Bark, which delightfully pleases, nourishes, and secures, in some Degree, these savage Beasts from the Red-water and Rot, that, in some clayey, moist Grounds, they are very subject to, especially in mild, wet Winters; inasmuch that, in one Gentleman's Park, I have known Hundreds die of these fatal Distempers in one Season: And so fond are these Animals of debarking the Thorn, that they will peel the lopped Arms and Twigs, 'till there be no Bark left on them; for which Purpose, there are many large Standard White-thorn Trees suffered to grow singly into large Bodies and Heads, and stand to great Ages, that there may be a sufficient Number in these Places to lop at different Times, that one may be getting a new Head, while another loses it. This prickly Vegetable is the greatest Security of almost all others to the Farmer and Gardener, for preventing the Breaking-in of Cattle to Fields of Corn, Gardens, and Orchards; and will resist the Bite and Cropping of all Sorts of Beasts, when the Hazel, Ash, Maple, and several others are spoiled by them: Accordingly, we find the Thorn a most excellent Sort, not only for growing in Quick-hedges, but also for standing as dead ones, for stopping of Gaps, and keeping off Cattle from damaging those Live-hedges in their Infancy, which, for Want of a good Guard, are often ruined by the venomous Bite of Cows, Horses, and Sheep: And, to the good Housewife, it is one of the most necessary Sorts to hang her Linnen on to dry, the greatest Part of the Year, when it is kept clipped; for it is by the Help of the Shears, that the White-thorn not only answers this domestic Purpose, but also be-

comes a charming ornamental, and, at the same Time, a most serviceable Hedge, or green Wall, in Mazes or Wilderesses, and Gardens; where it will grow to a great Height, and where it will be a most strong Defence, to Houses and Wall-fruit Trees, against the Violence of Winds, and the Rapine of Thieves; a Shelter and Refuge for Singing-birds to breed and chant in; and an admirable sweet Ornament in the Spring-season, by its fine white Blossom, for a considerable Time. Of its Wood are made Cogs and Staves for Mill-wheels, Heads of Beetles, Swingers for Flails to thrash Corn with, and one of the best of Walking-sticks; it is a very hard, tough Wood, that will grow, in a good Soil, to a Foot, or two, Diameter in its Body; and then it will be serviceable to the Turner.

The Black-thorn is a bushy Tree, not near so commonly planted, as the White-thorn; because it is a set, that cannot be drawn up with such a regular Root, as the White, but generally comes up with a Piece of one, that will not readily, therefore, grow on Transplanting; for the young Shoots of this Tree run almost along the Surface of the Earth, and strike many Roots, as they run; so that hardly one in twenty of the Sets can be drawn with a full Root to it. It is also refused, because it will not endure the Drip of other Trees, like the White-thorn; for the Black are very apt to die in such a Situation: Nor will it grow in Height so soon as that, because it employs its Shoots, in a great Measure, along the Surface, in throwing up many young ones, and that, sometimes, for four or five Feet Distance from the main Hedge; yet, when it gets up to a proper Height, it makes one of the strongest of Fences, even beyond the White-thorn. Likewise, when a Hedge is made, its Plaisb is apt to die; and, when

when it grows next to Sallow, Maple, Hasel or other Wood, their Root oftentimes gets the Ascendant of the Black-Thorn, and kills it; however, this prickly Tree is most serviceable for making dead Hedges to save the live ones, because this Wood will last two or three Years under this Use, when the White-Thorn will last but one. And lastly, the Black-Thorn yields that excellent Fruit, called Sloes, which, when rightly ordered with Sugar, makes a charming Wine, but it commonly serves in a Mixture with rough Cyder, and Spirits, &c. to counterfeit red Port-Wine. Its Bark is used by some when infused in Rennet, to prevent the Rotting of Cheese; and the Sloe itself, when made into a Conserve or Syrup, stops Fluxes to Admiration. Some few Trees of the Black-Thorn I have known to grow as Standards, in a certain Park, but then their Bodies must be helped at first by Stakes or other Trees, and are seldom thicker than a Man's Thigh, and they commonly get hollow in a little Time; they are lopped for the Deer to browse on, but as it is a drier Wood than the White, it does not answer this Purpose near so well as that. The Fowls and Mice, by carrying the Sloes to eat, propagate the Black-Thorn in many Places.

To plant a White-Thorn Hedge. The White-Thorn Set is the most planted of all others for Hedges, and therefore I shall be very particular in my Account of its Management in this Way. I have several Hedges now in a flourishing Condition, that I planted with the White-Thorn; and, to have the best Sort of Hedges from this Set, we plant only White-Thorn and Sallow in our Loams, Clays, and Gravels; and then it is we cut the Sallow twice to the Thorn's once, that is, the Sallow at six Years old, and the Thorn and Sallow together, at twelve. But, in the most common Hedges, we plant the

White-Thorn, Sallow, Hafel, Maple, and Ash, and these we make all at once at nine Years End, when the Field is Wheat; because then the new made Hedge is secured two Years from the Bite of Cattle, while the same Field is under the Growth of Wheat one Year, and Oats and Peas, or Beans, the next; so that in the third, or fallow Year, the Hedge has grown high enough, to be out of the Cattle's Way: But where an extraordinary good Husbandman is Master of a Farm, he will run a dead Hedge, or Stakes and Rails before the new made live Hedge, to secure it, after the Corn is got off, from all Damages of Horses, Cows, and Sheep, that may be put into the same Field to graze, by which Means such live Hedge is protected, till of itself it gets high enough to be out of Harm's Way. In the Vales they plant White-Thorn, Cra, White-wood or Aps, Sallow, and Elm Setts, and sometimes Hafel and Maple among them. But for the most part, they make use of only the White-Thorn, Sallow, White-wood, and Elm Sets, because these best agree with their heavy wet Soils, and turn to the most Profit in the least Time. But where a Hedge of White-Thorn is to be raised entire, they gather the Haws in *October*, and sow them directly in well prepared Beds of Light-loam, or else they preserve the Haws, or Seed, in Sand, till *February*, and then sow them in a Mould, that has been plowed or dug, till it is very fine, and rake or harrow them in, but they will not come up till the Spring Twelve-month; and then such a Hedge will be the thicker, and the Plants come stronger rooted and larger bodied. If, as soon as the Haws are sown, you spread over them as much fine Mould as will cover all half an Inch thick, and upon that a Strewing of Wood-ashes, or, what is much better, a very thin Coat of Soot

or

or Lime, which will help to preserve the Seed from Vermin and from Frost, and at the same Time cause them to sprout the sooner, and grow much quicker. Lastly, in case you are to raise a Hedge with a Ditch before it, by planting the Ground with entire White-thorn, or with that and other Setts, after the Piece of Land has been plowed or dug, and got into a fine Tilth; then, if this is to be done in the *Chilturn* Country, gather the Ground up into a four-thorough Stitch, or two-bout Land with the Plough, which will make Part of the Ditch, raise a Bank, and save a great deal of Charge, that a Man must be otherways at with the Spade; then draw a Furrow with the Plough in the Middle of the raised Stitch: Thus you have a Sort of Bed to lay your White-thorn Setts in, whose Roots are to touch the Surface of the main Ground, and, after their Heads are cut off, Part of their Bodies are to be an Inch or two out of the Earth, lying stone-wise in a Row, about six Inches from one another, where their Roots and the rest of their Bodies are to be covered with Mould, thrown out of the new making Ditch. Then lay or plant another Row with more White-thorn Setts, a Foot a-part, and higher than the first and lowermost Row, at the same Distance and in the same Manner you did the last; only observe to plant every Sett in the upper Row, in the Middle of the Interspace of the first Row, and then throw more Mould out of the Ditch, to cover their Roots, and that Part of their Bodies that are to lie in the Earth. Thus a Ditch will be made, and a Bank raised with Virgin or fresh Mould, that will carry on the Growth of the Hedge with great Fertility; and the more, if you lay some Horse-litter thinly over all, to preserve the young Setts from Frosts and too violent Heats and Droughts. When
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this Work is carried on thus far, the next Thing is to fence the new-planted Hedge well from the Injury of Cattle; then, at about six Years End, they may be plaished, and so become a strong Fence against all Sorts of Cattle in a very few Years, as I have found to my Satisfaction, in one of my plowed Fields, which I planted and inclosed with a new Hedge and Ditch about the Year 1734; and in 1740 I plaished it, leaving a Pear and Apple-tree growing at every forty Feet Distance in the same: And, at the same Time, was obliged to run along the Outside of the Bank a dead Hedge, to secure the live Hedge, and the Trees, from being damaged by my next Neighbour's Cattle, that I cannot hinder grazing next to it; and accordingly I must continue such a dead Hedge, or run a Row of Hurdles along in the Room of it, to secure the same, till it is grown high enough to be out of the Reach of Horses or Cows, which will not be till the third or fourth Year at least after such Plaishing. Some plant the lower Row with Crab-setts, and the Upper one with Haw-thorn; and if these and the White-thorn are kept weeded, during their infant Growth, they will come much sooner to Perfection. And sure it is, that nothing of Hedge-wood deserves more of our Care to bring up, than the White-thorn, because this not only makes the best of Fences of itself, but serves beyond all others to mend Gaps of its own, and, in any of those that are of the Hedge Sort, is the strongest, and will last longer than either the Maple, Hasel, Sallow, or any other; and, what is very valuable, this Plant gives an inviting Opportunity to Land-owners, to prove their Ingenuity, by grafting the White-thorn with Pear-cions, and, by such Improvement, presently produce great Quantities of profitable Fruit, that will furnish their Cellars with one of
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the best of Liquors, as good Perry certainly is, and also become a serviceable Kitchin-food in Pyes, Pasties, and other Shapes ; besides which, its Fruit, the Haws, is not only a fine Sort for Birds, but serves likewise toward fattening our Swine, and, for this Purpose, many beat the Hedges in the Winter, that the Hogs may the easier come at them, which, with the Opportunity they give to any that make Wine of them, and a distilled Water from the Stone, and other Uses, adds to the Value of this excellent Plant the White-thorn ; which here puts me in Mind of that great Rarity one, that grew at *Glastonbury* in *Somersetshire*, which blew into Flowers at every *Christmas*, and from which there are several large Trees growing that I beheld in 1737 ; and as I was told, there are many besides that prosper from Cuttings in other Places. And now, as I am writing of the White-thorn Fence, I shall mention something of the great Conveniency of Furz, that in some Manner will answer the same Purpose, and even exceed the White-thorn in its great Usefulness of growing in sandy and other light Ground, where that nor no other will prosper ; as may be seen in many Places in *Norfolk* and *Suffolk* ; where they call it Whins, and where it grows like a spinny Wood, eight or nine Feet high, by which it acquires large Stalks that serve for Fuel for Baking and Brewing with all the Year ; and it is among these high Furzes that Gentlemen get Plenty of Foxes for the Chace, for here they and their Young are secure till they are forced out. Near *Wanner* by *Deal*, in *Kent*, I saw great Quantities of Furz grow on sandy Banks, four Feet high, and three or four broad at Top, in which the Seeds of Furz may be seen in Drills, or raked-in, and come to Perfection in a few Years ; and when they are, they make impenetrable Fences against Huntsmen and Poachers, that will turn to great Profit, for such

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Furz may be cut once in three, four or five Years, to brew, wash, and burn Bricks and Lime with in Kilns. Likewise, if Furz be mowed young in *July*, and bayed, and ground like Tanners Bark, it will make good Manger-meat for Horses. In 1741, I saw several new Plantations of Furz in *Bedfordshire*, raised by Seed, sown on a low Bank about two Feet high, to keep off Road-cattle, from entering and poaching their Turnep and Corn sandy Ground; and in this Manner Haws may be sown in low or high Banks in Drills, and thus make, like Furz, one of the strongest of Fences. But to be more particular in raising a Thorn Hedge, as the speediest of all others. If you can, let your Plants be about the Thickness of a Finger, and set almost perpendicular, and cut within four or five Inches of the Ground, and planted in a double Row, at about half a Foot Distance, in a flat plain Bank, and they will prosper infinitely, and much outstrip the closest Range of our trifling Setts. Another Way to plant a Quick-sett in a Field, or about the Outside of a Garden, &c. is: First, to plant a Row of Setts on the Brink of the Ditch in the upper Mould, and cover them with the better Part of the Mould taken out of the Ditch, and raise the Bank about eight or ten Inches above them; then place another Row of Setts, each Sett against the Spaces of the Row; then lay more of the best Mould to the Roots of the Setts, and raise the Bank as before, and place another Row of Setts opposite to the first, applying the best Mould to the Roots, and finish the Bank with the Bottom of the Ditch.

C H A P. XXXV.

Of the MEDLAR, and SERVICE-
T R E E.

HOW ordered, grafted, and improved, &c. The Medlar is accounted to be of the Number of Apple-trees, and Pear-trees; it is planted in the like Manner as the Quince is; it delighteth in hot Places, but, well watered, it will do well enough. It is planted off the Cion in *March* or *November*, in a well dunged Ground, and a fine Tith. It is also set off the Stone, but then it will be very long before it cometh to any Thing: It is excellently well grafted on the White-thorn, the Pear, or the Apple. The Medlars that you mean to keep, you must gather before they are ripe; and being suffered to grow upon the Tree, they last great Part of the Winter. They are preserved in foddren Wine, Vinegar, and Water. Of the Wood of the Wild Medlar we use to make Spokes for Wheels of Carts, and the Twigs of them serve for Carters Whips.

This Service-tree is raised from either Seed or Suckers. If from Seed, in *October*, when they are ripe, rub off their Mucilage, or Pulp, with dry Sand; then dry them in the Sun, and keep them in Sand till *February*, or *March*, and sow them in well prepared Beds. After they have been here weeded well, and watered now and then, in dry Times, for two Years, you may transplant them out, at forty or fifty Feet Distances, in Meadow or other Ground that is moist and loamy, for this Tree will not prosper in too dry a Earth, and then they will have full Room to grow, because these Trees, in a right Soil, will arise to large Bodies of Timber, and become ornamental in Walks

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and Vistoes. Its Wood is serviceable to the Inlayer, Joiner, Carpenter, Gunsmith, Engraver, Turner, and Millwright; being of a hard Nature and close grained, which may be still farther improved, and made to look like Ebony, by rubbing it with Linseed-oil. The Leaves of this Tree grow much like, and appear an Ash-tree at a Distance, but they are not so large. Its Berries are red and about the Bigness of a large Haw, growing in Clusters, somewhat like Grapes, that must be gathered at *Mid-September*, for I have known them to fall off by the First of *October*; and then they must be got in dry, or else they will be mouldy, and likewise kept dry, till they become brown, soft, and almost rotten, like a Medlar; and, when they are thus cured, they are much eaten by the *London* Youths, as a pleasant Fruit. The Wild is better than the Garden-tree to graft on. It has no Prickles as the Medlar hath. It groweth off the Stone, the Sett, the Root, or the Cion. It is planted in the two Months before-mentioned in cold Countries, and in hot in *October* and *November*. It is grafted either on its own Stalk, or on the Quince, or Haw-thorn, either in the Stock or off the Bark. This Tree grows both in Standard and Under-wood. There is one of them stands about ten Poles off my House at *Gad-desden*, and it is reported by our Country People, that the Cross of our *Blessed Redeemer* was of this Sort of Wood. It likewise grows in our Coppices as Underwood, where there are many Poles that shoot from its Stems or Roots. It is said there are three Sorts of Medlars. The Common, the large *Dutch*, and the Dwarf: Two Sorts of Service-trees, the *English*, bearing Berries, and the *French*, a Fruit like a very small Pear. Dr. *Quincy* says, the Medlar is a grateful Fruit, yet not eatable till it is rotten. Services are also much of the same Kind as Medlars, and as much valued in Diet for the same Qualities. The

The *Dutch Medlar* is said to be the best. The *Service-tree* is a slow Grower. To preserve the *Medlar*, manage them exactly like the *Quince*. As for *Services*, gather them before they be ripe, Stalk and all, tie them up in little Bunches, and hang them on Lines, in an airy and warm Place, and here they will ripen kindly.

C H A P. XXXVI.

Of the I V Y-T R E E.

ALTHO' this Shrub, or Tree, is commonly looked on as an Annoyance to the Tree it twines about, yet it is not without its good Qualities in other Respects. There was one that grew to an Oak, being four Inches thick, till its Head reached some of the Oaken lower Boughs, and here it grew so large at last, as to give a Turner the Opportunity to turn its Body into Drinking-cups, which he sold for Two-pence half-penny a Piece; and the more for its being deemed to yield a healthful Tincture or Virtue to the Liquor, so as to make it serviceable against the Cramp and Hooping-cough. Some tall Ivy-trees will have a Body big enough to turn into Pepper-boxes, and other curious Matters, but that which grows against Walls is never big enough for this Purpose. This Wood, when worked into fine *Tunbridge* Hollow-ware, has a most beautiful Cast with it. And it is very useful and ornamental to plant for its speedy Growth and Running its Cover over Arbours, which it will shade and shelter with its ever-green Leaves to great Perfection, besides the Pleasure it gives our cleanly Housewives of adorning their Windows with it at *Christmas*, and to Sextons for the like Purposes in their Churches. About *Gaddesden* it is

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common for our Shepherds to go in Quest of this serviceable Plant in snowy Weather, to gather its Leaves for Sheep and Lambs, as part of their Subsistence, when they can hardly come at any other green Meat: And likewise in rotting Years, for, by certain repeated Experience, the Leaves of Ivy are an excellent Antidote against the Rot and Red-water; and at any Time, when eaten by Sheep or Lambs, will greatly contribute to the Preservation of their Health; and indeed, as if Nature dictated it, they are always fond of eating the Leaves when they find them. The Berries, also, of this Plant are said to be endowed with many Virtues. Ivy makes an excellent Spoon.

C H A P. XXXVII.

Of the ASPEN and POPLAR.

T*Heir Use. Abele, how propagated. Its Use.*
Alder, its Use. In my First Part, I have writ so particularly and largely on these aquatic Trees, that I shall say the less here; and therefore only follow Mr. *Houghton's* Collection, from *Evelyn*, &c. The Shade of the Poplar is esteemed very wholesome in Summer; but they do not become Walks nor Avenues, by Reason of their Suckers, and that they foul the Ground at the Fall of the Leaf; but they should be flanked in barren Woods, and to flank Places at a Distance, for their Increase, and the Glittering of their Leaves, which are Food for Cattle, if they are stripped from their cut Boughs, before they are faggotted; this is to be done in the Decrease of *October*, and reserved in Bundles for Winter Fodder. The Wood of white Poplar is sought of the Sculptor, and they saw both Sorts into Boards, which, where they lie dry,

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dry, continue a long Time. The Asp, or Aspen, is a white Poplar, as likewise is the Abele, or Arbell, which of late Years we have had much from *Holland*. They are best propagated off Slips from the Roots, the least of which will take, and may in *March*, at three or four Years Growth, be transplanted. In *Flanders* they have large Nurseries of them, and we now, within twenty Miles of *London*, have them plentiful enough. The Planting is easily learned, and, in three Years, they will come to an incredible Altitude; in twelve, as big as your Middle; and, in eighteen or twenty, arrive to full Perfection. By these, in a little Time, a Man may have his House in a Wood, where, a little before, there did not grow a Stick. The black Poplar grows rarely with us; but plentifully on the River *Po* in *Italy*; and there is a Mountain Poplar near *Vienna* and in *Bobemia*, of which some Trees have yielded Planks of a Yard in Breadth. The best Use of the Poplar and Abele is for Walks and Avenues, about low Grounds, 'till, coming to be very old, they are apt to grow knurly, and out of Proportion. The Timber is incomparable for all Sorts of white Wooden Vessels, as Trays, Bowls, and other Turners Ware; and of especial Use for the Bellows-maker, because it is almost of the Nature of Cork, and for Ship-pumps, tho' not very solid, yet very close: Also for wooden Peels, Frames of Chairs, and many other Uses; particularly for making Carts, because it is exceeding light; and for both Vine and Hop-pros. The Loppings, in *January*, are for the Fire; but it burns untowardly, and rather moulders away, then maintains any solid Heat; of the Twigs, with the Leaves, may be made a Sort of Broom. The *Brya*, or Catkins, attract the Bees, as do also the Leaves (especially of the Black) being more tenacious of the Mill-dews, than most Forest-

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Forest-trees, the Oak excepted. Of the Aspen, our Wood-men make Hoops, Fire-wood, and Coals, &c. The Juice of Poplar-leaves, dropped into the Ears, asswages the Pain; and the Buds, bruised and mixed with Honey, are a good Collyrium for the Eyes; as the Unguent is to refrigerate and cause Sleep. As for Alder, the first Vessels we read of for Water-carriage (except *Noah's Ark*) were of this Wood, and, if it lies always under Water, it will harden like a Stone; but, if kept in an inconstant Temper, it rots immediately. The Coals of Alder are very much valued for Gun-powder, and the Wood for Piles, Pumps, Hop-poles, Water-pipes, Troughs, Sluces, small Trays, Wooden-heels, Frames of Chairs, and Trenchers; the Bark is precious to Dyers, and some Tanners and Leather-sellers make use of it; and with it and the Fruits (instead of the Galls) they compose an Ink. To this I add, the Poplar, though of the aquatic Sort, will grow in loamy Soils on Hills, as several do near *Gaddesden*, and there run up a great Pace, but not quite so fast as in the rich Vale Lands. In both, this Tree, if it has Time enough allowed it, will get into a brownish Heart, somewhat like Oak, but much quicker; and for this Reason it is of Service in building Houses, Barns, and other Erections; therefore is, like the Elm, sold for ten Pence, and a Shilling a Foot, when the White-wood, Asp, or Arbele, sells only for Six-pence: However, both this, the White-wood, Asp or Arbele, are all of them, like the Cherry-tree, apt to run roundish in their Grain, by which their Boards are easily made, by the Heat of the Sun, to rive and twist more from their fixed nailed Places, than any other Wood. The Alder, the more it is used, the longer it lasts: Fell one in Winter, and debark it, it will last as long again, as one felled in the Spring, when the Sap begins

begins to rise. In *Hampshire*, they have a Notion, that Alder, growing in a wet, sandy Ground, is better to make Charcoal for Gun-powder, than that which grows in a drier Soil, as I was there informed, in 1738. A Man wetting an Alder Stick of two Inches Diameter, blowed at the other End, and it spurted, which shows its Porosity. If Alder is kept sometimes wet, and sometimes dry, it rots presently; but if laid under Ground, in a moist Soil, for the Foundation of Churches, Bridges, or Houses, it will remain here for ever, and bear up the greatest Weight to all Eternity, as was formerly experienced, more than in latter Times; for now we most commonly use Oak, Beech, or Elm, for the sake of their large Bodies. The best Sort of Alder is said to come from *Holland*, and so much loves to be planted in a moorish wet Soil, that it will grow a-pace with little Trouble. If its Cones or Catkeys are sown in *March* or *April*, and they be carefully weeded afterwards, they may be transplanted two or three together, in one little Hill, and each Hill to be six Feet asunder. Then at eight, twelve, or fourteen Years End, they may be cut for Chair-makers, Turners, and others; but, the older they are, the more Profit they'll bring. This Tree, as I said in my First Part, while it is growing in to quick Advantage, serves, in many Places, to part and secure inclosed Fields, against the Breach of Cattle, by growing in beautiful Hedges, where it pays the best of all the watry Hedge-woods; and which I have made more plainly appear, in my Account of those fine ones, now growing between *Watford* and *Hempstead*.

C H A P. XXXVIII.

Of the W I L L O W.

W I L L O W. *described. Two Kinds. Where they delight. How planted. It may be grafted. They are very profitable. The sweetest Fuel in England. A Garden Willow. An odoriferous Willow. Uses of Willow.* This Tree bears its Seed (says Mr. Houghton, in his Collections) in single Coverings; and this Seed is contained in Catkins, called Juliferous Trees, and is of the longer Leaf, and of a soft Wood, growing most naturally in moist Places, having its Leaves more dense and compact, than the Sallow, and being the larger Tree. Our common *Salix*, or Willow, is of two Kinds, the white, and the black, the white is also of two Sorts, the one of a yellowish, the other of a browner Bark; all of them are planted of Stakes. The white delight in Meads and Ditch-sides, rather dry, than over wet; yet the black and reddish do well in more boggy Ground. When they are planted, let Holes be made for them, rather than be forced in with too great Violence; and they must be soaked in Water two or three Days before they are planted, and done in *February*, and the Mould well closed about them. By good Management, there may be made very profitable Coppices of them, and the Manner Mr. *Evelyn* tells; but, it being with us a common Tree, I say the less. These Trees may be grafted betwixt the Bark, or budded, and then they become so beautiful, as to be fit for some Kind of delightful Walks. These may be so ordered, in low, marshy Places, as, in eleven or twelve Years, to yield a hundred Loads of Wood in an Acre. It is the sweetest of all our *English* Fuel,

Fuel, provided it be found and dry ; and, emitting a little Smoke, is the fittest for Ladies Chambers. There is the Garden-willow, which produces sweet and beautiful Flowers, which may be set for Partitions of Squares, but they have no Affinity with the other. There is in *Shropshire* another very odoriferous Kind, extremely fit to be planted by pleasant Rivulets, both for Ornament and Profit ; it is propagated by Cuttings, or Layers, and will grow in any dry Bottom, so it be sheltered from the South, affording a wonderful and early Relief to the industrious Bee. What most of the former Kinds differ from the Sallows, is not much considerable, they being generally useful for the same Purposes, as Boxes, such as Apothecaries and Goldsmiths use ; for Cart Saddle-trees, Gun-stocks, and Half-pikes, Harrows, and Shoe-makers Lasts, Heels, Clogs for Pattens, Forks, Rakes, especially the Teeth, which should be wedged with Oak ; but let them not be cut for this, when the Sap is stirring, because they will shrink ; Perches, Hop-poles Rising of Kidney-beans, and for Supporters to Vines : Also for Hurdles, Sieves, and Lattices ; for the Turner, Keil-pins, or Skettles, great Town-tops, for Platters, little Casks, and Vessels, especially to preserve Verjuice in, the best of any. Pales are also made of the cleft Willow, Dressers, Fruit-baskets, Canns, Hives for Bees, Trenchers, and Trays ; and, for polishing and whetting Table-knives, the Butler will find it above any Wood, or Whetstone ; also for Coals and Bavin, not forgetting fresh Boughs, which of all the Trees, yield the coolest Shade in the hottest Season of the Day ; and they are fit to be placed about the Beds of feverish Persons. The Wood, preserved dry, will endure a long Time ; but what is wholly putrified, and reduced to a loamy Earth in the hollow

Trunks of superannuated Trees, is, of all others, the fittest to be mingled with fine Mould for the raising our choicest Flowers, such as Anemonies, Ranunculus's, Auriculus's, and the like. To this Account I add, that with us there are three Sorts of Willow growing, the red, the yellow, and the white: The red is that, which has a great Number of little Twigs growing on long Shoots, and will have a reddish Cast on cutting its Wood. This Sort is thought to endure as long as Heart of Oak, if cut down at a right Age, and kept dry, or Abroad; for I knew a Lath-render, that rended Pales out of this Wood, in the same Year King *William* died, and they stand firm to this Day, the 27th of *March*, 1741, which is about thirty-nine Years ago, as he this Day assured me; they have worn out the first Rails, they were fastened to, and since nailed again to new ones. The Gore, or yellow Sort, has a Wood lighter and more spongy, that, by consequence is less durable; and the white Sort is much the same. A Shoot of Willow has grown, the first Year after Lopping, eight Feet in Length in one Year; but then its Roots had the extraordinary Benefit of growing, some Part of them, in a Sink-hole; and, though this is an aquatic Tree of, I believe I may say, the second Class of the watery Sorts, yet, where Willows have stood a little dry, some Years, and afterwards have had their Roots constantly under Water, it has killed them, as was proved near the Town of *Fring*, three Miles from *Little Gaddesden*, where a Water was increased for supplying an Engine, belonging at this Time to that generous, worthy Gentleman, *Charles Gore*, Esq; which caused the Inundation. It is said, there are the sweet-scented Willow, the weeping Willow, and the *German* Willow; but, with us, we mind but one Sort, that

that will grow both in loamy dry Ground, and also in moist Land ; in the former, I have at this Time several growing in my Hedges, and that well, yet the Sallow, in dry Soils, far out-does it in largeness of Growth, and Profit.

C H A P. XXXIX.

Of the WHITE-WOOD, SALLOW,
and WITHY.

THE *Nature and Usefulness of the White-wood Tree.* This is the favourite Tree of *Ailesbury Vale*, for the several good Properties belonging to it ; and, although I have wrote, I believe I may say, the first and largest Account of this Tree, in my last Book, at Page 98, yet I have more to write in this, *viz.* 1st, This Tree is allowed to grow the fastest of any of the large Timber Sorts, that may be called Aquatics, and that in Woods, Hedges, or singly in open Fields, and that to a monstrous Size ; for which particular Reason, the Vale-men distinguish it by the Name of *White-wood*, though it is of the Nature, and much like what they call *Dutch Abele*, or *Arbel*, and not very different from the *Aspen*, or *Asp*, as having its Leaves on one Side extremely white, that, like the *Asp*, in a little Wind, tremble, and quake. 2^{dly}, It saves the great Expence of Deals, and their Carriage from *London* ; for this Wood surpasses all others for white Boards, and making Dressers, Tables, Chests of Drawers, and many other Things very delightful to the Country Housewife. 3^{dly}, For its Cheapness of Six-pence a Foot at Home, and therefore easily purchased by the poor Man for building him a Cottage, supplying him with Bedsteads, Cup-boards, Flooring-boards,

boards, Sommers, Joists, and Rafters, for thatching upon. But here I must not forget to expose one great Fault belonging to this Wood, and that is, it discourages the Carpenter and Joiner from having to do with it, because it gives them abundance of Trouble in planing its Boards, as being the most stringy Sort of all others, occasioned by its soft Nature from a very thin, watery Sap, contrary to the oily, glutinous Property of the Fir, or Pine-tree, whose Sap yields Turpentine, Pitch, Tar, and Rosin.

The Sallow. I have also wrote, in my First Part, a large Chapter of this most useful and profitable Tree, because it pays the Planter in Hedges and Coppices, in wet and dry Grounds, beyond all others whatsoever, as I have there plainly proved, and which I every Year experience in my several Sorts of Clays, Loams, Chalks, and Gravels. Now I have here to add, that it is best cutting an old Sallow late, and a young one early; because, if the old one is made too soon, its Roots will be apt to die; and, if the young one is cut late, it's apt to bleed, or run out so much of its Sap, as to kill or damage it. About the Year 1721, I planted near forty Poles with Beech and Thorn-fets, and to fence it in, I ran a dead Hedge along its Outside; in which I used some Sallow-stakes, that took Root; and having exchanged a Field with my Neighbour for one of his, that joined this, and to lay both Fields into one, I had this twenty-year-old Hedge stocked, or dug up in *September* 1741, that grew in a gravelly Loam. Now what I have here to remark is, that the Roots, which grew from the Sallows, ran down, by Means of the Stakes, so deep, that it was three Times more Trouble to take them up, than the Beechen ones; and though the Beech thrived, I believe, as well as any ever did, yet the Sallows doubled their Profit, by their quicker Growth.

The

The Withy is likewise a very profitable Aquatic, as I have in my First Part amply made appear. Between *Sbotbam* Mill and *Hazlemere*, I saw great Numbers of Withies grow in sandy, loamy Banks, that were raised to four Feet high; these, with Birch that grew with them, ran up into fine high Poles, which were cut at nine Years End; the Withy first, and the Birch afterwards. Of the Withy there are more than one Sort; one will grow in dry Land, others in wet. Of the Withy they make Charcoal for drying Malt and Hops, and with its Body and Boughs are also many very useful Things made for the Farmers and other Uses, being a very quick Grower, and like the Willow and Sallow, soon ripe, and soon rotten, especially the Water Sort.

C H A P. XL.

Of the O S I E R.

THE *Ofier* its Improvement. As I have wrote but very little on this aquatic Plant in my First Book, I shall enlarge the more on it here. *Ofiers* are of several Sorts, as the Yellow and Green *Ofier*; Willow and Speckled *Ofier*; the *Flanders*, the *Perch*, the *Horfe-gelster*, the *Hard-gelster*, the several *Golfions*, the *Swallow-tail*, and *Spanish* *Ofiers*, and several others; some brittle, others more limber, and others more hard and tough. *Ofiers* are smaller than *Sallows*, and of less Duration, but least of all where they have not sufficient Moisture, for without this they will not thrive. The *Ofier* differs as much from the *Sallow*, as the *Sallow* from the *Withy*. There are great Improvements of late made by Plantations of *Ofier*, in shallow Waters, and where nothing else will grow, that are raised and maintained with little Charge: As those
are

are in the several Aits of the River *Thames* below *Kingston*; about the large Pond through which a River runs at *Alton* in *Hampshire*, and in and near the River of *Colebrook*; and many other Places in *England*, to the very great Profit of their Owners, even to twenty Pounds an Acre formerly, though now but eight or ten. From *November* to *Mid-February*, the Sets of Osiers may be planted at five Feet a-part in well prepared hollow Earth, of five Feet in Length, at five Feet asunder, which at three Years of Age, cut off to about two Feet above Ground in *February*, that they may shoot out again in many fine Twigs or Shoots, and be fit to be cut the sooner afterwards. These Osiers may not only be planted for the Profit of selling them to Basket-makers and others, but at the same Time made to serve as Fences or Bulwarks against the Breach of Waters, which otherways are apt to beat against, and wash away the outside Earth of Fields, and Grounds, to the great Damage of their Owners; and for this very Reason there are many Plantations made of this useful watery Vegetable in *Yorkshire* and other Places, along the Sides of Rivers and Ponds: But then such a Plantation must stand as thick as well can be, and be carefully kept cut low, for, if the Osier-shoots are admitted to grow too long, the Winds and Waves would waft and shake them so much as to loosen their contiguous Earth, and cause a Waste or Wash of it. In such Plantations many are engaged for many Miles along Rivers, and if one particular Man is careless of his Osier Plantation by suffering it to decay, and thereby letting in the Water to drown or damage his own and Neighbour's Land; they endeavour to force him into better Husbandry, by presenting him at the next Sessions, or otherways, as guilty of a great Nuisance. So that by these Means there may be beneficial Crops of Osiers obtained, at the same Time they are a constant Security against Breaches

Breaches and Inundations of Waters, according to an Account given me by a *Yorkshire* Gentleman in 1740, who was an Owner of such Plantation. But here I must remark one great Inconveniency attending the Osier Plantation in Rivers and Ponds, and that is, when their Leaves drop in Autumn, they commonly cause the Waters to be sick and faint, and very unfit for Brewing, as is annually experienced, even in the great River of *Thames*, as I said before below *Kingston*, where the Inhabitants of this Town, at this Time of the Year, refuse to make use of it for this very Reason, and prefer another Water that comes to them, by a little River, out of the adjacent Country. Now to have fertile Plantations of Osier, Owners must carefully endeavour to keep up the Earth to their Sides, and prevent Horses, Cows, and Sheep from debarking and cropping their Twigs in their Infant-shoots; otherwise their Profit will amount to little or nothing: But if such Plantations are well managed, they will pay extremely well for the Use of the Basket-maker, Fisherman, Gardener, Packer, Fruiterer, and many others; for which Reason, 'tis a pity there are not many more Plantations of this most serviceable Aquatic, that we may not be beholden to foreign Countries, who yearly send great Quantities over to us, for supplying our Markets and their Pockets. An Osier is one of the first Shooters in the Spring-time, affords an early pleasant Greenness, and runs into greater Lengths than any other in a little Time. On the River *Thames* between *Kingston*, and about *Stains*, *Egham*, *Windsor*, *Maidenhead*, &c. there are several Osieries, or Aits and Holts, that are planted with the smooth, long-leaved, green Osier, whose Buds at first are reddish, but after of a yellowish Green; a Sort much in Esteem with the Basket-maker. Next are those for Gardeners Use, as the long-leaved, yellowish
Sort

Sort, that they bind up their Bunches of Turneps with. Here also grows the red Rod-osier; the *Spanish* or brown tough Red, and the whitish coloured Osier, that, in rich and moist Land which is overflowed now and then, will thrive exceedingly well, and last thirty or more Years. Prepare your Setts a Month or two before Planting, and plant them about the Beginning of *February*. Where you can float when you will, plant young Setts; otherwise strong Setts that come sooner to Perfection, and produce good Shoots or Rods the first Year. An Acre will take up 7 or 8000 Setts, to be put in the Ground at near three Feet asunder. Cut the large Setts close to the Head; but if they are Foot-setts, head them a Foot from the Stem. If they are let alone three Years, they will be in Perfection, and yield about 140 Bolts, which, when they sell well, as they do in plentiful Fruit-years, will fetch eighteen Pence a Bolt. Hough them well, and there is no great danger of having a good Crop. To this Use many marsh and wet boggy Meadow-Grounds may be applied, where such Lands do not pay well for Hay or Grazing, by reason of too frequent Inundations; for this Vegetable is such a watery Native, that it will prosper even in a stagnated Water, where hardly any other will.

C H A P. XLI.

Of Transplanting great Trees with Success, Felling Trees, &c.

IN Summer, make a Pap of the Earth with Water, that the Tree is to be planted in, and at, or towards the Top, lay Straw, or Fern, between a shallow Covering of Mould, to receive and hold

hold the Rain, and become a Sort of Watering-pot. In Winter, a little before the hardest Frosts, make a square Trench about your Tree, at such Distance from the Stem, as you judge sufficient for the Root; dig this of a competent Depth, so as always to undermine it, by placing Blocks and Quarters of Wood to sustain the Earth: This done, cast in as much Water as may fill the Trench, or at least sufficiently wet it, unless the Ground be very moist before. Thus let it stand, till some very hard Frost do bind it firmly to the Roots; and then prepare it to the Pit, prepared for its new Station, which you may preserve from Freezing, by laying Store of warm Litter in it, and so close the Mould the better to the straggling Fibres. But, if the Mould and Tree be over heavy, it may be raised by a triangular Crane with a Pulley, by which such great Trees may be weighed up and conveyed on a Trundle, or Slide, to the Place where it is to be replanted. By this may be removed Trees of a wonderful Stature, without the least Disorder; and many Times without Topping or Diminution of its Head, though our common Way in *Hertfordshire*, and in all other Places I have been at, is, to cut off so much of the Tree's Head, as will make it in Proportion to the Roots that are to nourish it. Mr. *Houghton* says,— To transplant an old Tree, was a Proverb for a difficult Enterprize: Yet, it is recorded, that Count *Maurice*, a Governor, planted a Grove, near his Palace, in *Brazil*, containing six hundred Cocoa-trees, of eighty Years Growth, and fifty Feet to the nearest Bough, that he wasted on Floats and Engines four Miles, and planted them so luckily, that they bore abundantly the first Year. He gives several other Instances of such Success, particularly one, done by a great Person in *Devon*, who transplanted Oaks, as big as twelve Oxen

could draw, to supply some Defect in an Avenue to one of his Houses: But more of this in my First Part.

Distance to plant Timber Trees. Time of Felling.
To know what is fit for Felling. Some advise, that four or five be suffered to stand very near to one another, and then to leave the most prosperous, when they find the rest to disturb his Growth; others are for never planting a Timber Tree nearer than forty Feet Distance, where closest, especially of the spreading Kind. Trees of ordinary Stature, transplanted (being first well water'd) must be sufficiently staked and bushed about with Thorns, or something better, to protect them from the Violence of Winds, Rubbing of Cattle, or such like; 'till being well grown and fixed (which may be in seven Years) they will be able to withstand all accidental Invasions, but the Axe; therefore, for Timber Trees, cut off no Heads, nor be too busy with Lopping; but for Shade, Fuel, or otherwise, lop off from their Tops unthriving Branches only: If you intend an out-right Felling, stay 'till *November*, else, the Sap not being perfectly at Rest, the Worms will breed there. But for the Chimney you need not be so punctual; (if this last is Mr. *Evelyn's* Notion, I must make bold so dissent from it, in the Particular of the Beech-tree, which, for the several Reasons I have in my First and this Second Part laid down, ought to be fell'd in the Middle of Summer, that the Sap, being then at the thinnest, may leak out, and the Tree be better preserved against the Worm, which is what breeds it, and causes a swifter Destruction in this Wood, than in any other.) The best Time of Felling is, just before they begin to decay; but such, as appear decaying, are first to be cut down, and then those that are approaching to it; but the plain Thriving indulged 'till the last. The best Way to know the

the State of a Tree, is to bore with a middling Piercer, made Augre fashion, and to examine what Substance comes by the frequent Pullings out. Some will pronounce shrewdly the State of a Tree, by digging about the Roots; and when a Tree perishes at Top, 'tis ever a Mark of a great Decay in the Tree's Roots. There is also a swelling Vein as I have mentioned in the Chapter of *Oak*, and which I here repeat, which eminently discovers itself above the rest of the Stem, altho' invested with Bark like the rest, and which frequently circles about the Tree like Ivy, which is an infallible Sign of Hollowness; which last Particular I have largely explained, in my Chapters of the *Oak*, *Beech*, and *Asb*. The Time for this destructive Work, is about the End of *April* (when the Bark of the *Oak* arises freely) although Men greatly differ: But, without Doubt, while the Trees are overmoist, they are not so fit for the Axe, for they are more obnoxious to Putrefaction and the Worm: Wherefore, 'tis advised, before a Fall, to make a Gash to the Pith, that the whole Moisture may extil; for the Vessels, that ascend in the Bark, are called the Arteries, and those, that descend in the Trunk or Body, are the Veins, according to Dr. *Grew*, and *Malpighius*, two learned Members of the *Royal Society*. Yet may not such a Gash be made, as to damage the Timber, otherways than that of cutting or sawing the Tree down at its Bottom; which, as it is the common Way of Felling a Tree, it will answer our Intention so far. But there need no Stress to be laid on this Management, where the *Oak* is to be sawed into Planks or Boards, and then soaked for a Fortnight in Water; because this Way is a far greater Security against the Worm than the other, as of late has been discovered, by many repeated Experiments, as well in my own Practice, as that of

others; and which was not known in Mr. *Evelyn's* and *Houghton's* Days, so well as it is now.

Felling Wood. How. The Bark. Survey your Woods as they stand, immediately after *Christmas*, and then divide the Species in a Note-Book, and consider for what Purpose every Kind is most useful; after this reckon the bad and the good together, that one may put off the other, without picking the Wood, as Mr. *Evelyn* has very well observed in his *Sylva*. This done, learn the several Market-prices, as what so many Inches square, or long, are worth, or by the Foot, for the several Trades and Uses that they are necessary for. As suppose it were an Ash, to set a-part the largest for the Wheel-wright, and the smallest for the Cooper, and that of ordinary Scantling for the Ploughs, and the Brush to be made into Kid-faggots, and so all others: Or you may mark out such as you intend to fell; and then begin your Sale about *Candlemas*. Being now entering with your Workmen, one of the first and principal Things, is the skilful Disbranching of the Bole of all such Arms and Limbs, as may endanger it in the Fall; therefore, in a very great Arm, chop a Nick under it, close to the Bole or Body, and, so meeting it with the downright Strokes, it will be severed without Splitting. In Trees that are called the Male, the Wood is much harder than the Female. If you design a fresh Growing from the Roots, fell your Tree as close to the Ground as possible; besides, the longer the Stick, the better for many Uses. Some will not cut a Seedling Oak, so as to have any Thing grow from its Roots, because they say it produces a reddish Wood, not acceptable to the Workman; and that the Tree; that grows on the Head of its Mother, does seldom prove good Timber. It is observed, that one Foot of Timber, near the Root, is worth three farther off; especially

ally in that of Ash, which, of old, has been accounted the toughest and most serviceable, particularly for making broad Hoops. If it be a Winter Fell for Fuel, cut no more of the Head in one Day, than the Cattle will eat in two; I mean, of Browse-wood; and when that is done, set it up an End as soon as you can, to preserve it from rotting. But as to the Debarking of the Oak in the common Season, the Method of doing it by Peeling-irons, and the Way of setting up, and selling the Bark to the Tanner, I have copiously writ on already. Lay up your sawed Timber very dry in an airy Place out of the Sun, or Wind, and laying along one Piece upon another, interposing some short Blocks, to preserve them from Mouldiness, which they usually contract, while they sweat, and which frequently produces a Kind of Fungus, especially if there be any sappy Parts remaining, that were not extracted by Water.

When you submerge your Timber, Planks, or Boards in Water, lay them afterwards upright in the Sun and Wind, so as it may pass freely through them, and turn them daily. This done, new sawn Boards will floor better, than many Years dry Seasoning. But, to prevent all possible Accidents, let the Joints for your Floor be shot, fitted, and tacked down, only for the first Year, nailing them for good the next, for thus they will not in the least shrink. Among Wheelwrights, the Water-seasoning (which hinders the Exhaling of the alcali Salt in it, causing the Hardness) is of especial Regard. The *Venetians*, for their Arsenal Provision, lay their Oak some Years first in Water, while the *Turks* fell at all Times; therefore, though they have excellent Oak, it decays in a short Time, by this only Mismanagement. Some commend Burying it in the Earth, others in Wheat; and there be Seasonings of the Fir

Fire, as for the Scorching and Hardening of Piles, says Mr. *Houghton*; but I think, I have sufficiently exposed the Damage Scorching does to Timber, when it is done so hastily, as to cause Rends and Cracks in it, as the late common Way has been, through Mistake. Indeed, where such Pains are taken (like the *Venetians*) to roast it gradually, so as to prevent Cracking, it may be of great Service to Piles and Posts; but so much Trouble, I presume, will hardly go down with the *English*.

Best Place for the Growth of Timber. Some Oak as well veined as Walnut-laths. *Durability.* Timber is esteemed best that grows most in the Sun, and on a dry, hale Ground; for those Trees, which suck least, are hardest, and longest lived: The Climate contributes much to its Quality, and the Northern Situation is preferred, although there are some Exceptions. It is noted of Oak, that the Knots of an inveterate Tree, just where a lusty Arm joins to the Stem, are as curiously veined, as the Walnut. The more odoriferous Trees, are reckoned the more durable; and yet well-seasoned Oak may contend with any, if preserved constantly wet, or constantly dry. The two Sorts of Laths, allowed by Statute, are, one of five, the other of four Feet long, because of the different Intervals of Rafters: The first has an Hundred to the Bundle, and the last an Hundred and twenty; and to be in Breadth one Inch and an half, and half an Inch thick; of each of which Sorts there are three, viz. Heart of Oak, Sap-laths, and Deal-laths, which also differ in Price. The Heart of Oak are fittest to be under Tiling, the second for Side-walls, the third for Cielings, because they are streight and even. The different Strength of Woods has been proved by breaking them with Weights; and, in the Lead-mines of Mendip

Mendip long and high Hill, in *Somersetshire*, Pieces of Timber, of the Thickness of a Man's Arm, have been known to support ten Tons of Earth; and that some have lain here two hundred Years, and yet are as firm as ever, growing tough and black, and, being exposed two or three Days to the Sun, scarce yield to the Axe. For several other Curiosities, relating to Timber, you are referred to the *Problems* of Cardinal Cusa, Sir *William Petty's* Treatise of *Duplicate Proportion*, Dr. *Grew's Comparative Anatomy of Trunks*, the Act of Parliament for building the City, Dr. *Plot's History of Oxfordshire*, and Dr. *Wallis de Motu*; also to *Subterranean Petrified Trees, and their Microscopical Observations*, by the ingenious Mr. *Hook*, the Curator of the *Royal Society*.

C H A P. XLII.

Of the FURZ, or WHINS.

THE Benefits of improving Furz, or Whins. Although this Vegetable is deemed only a Shrub, or Weed, yet, for its many excellent Uses, it deserves our closest Regard; and therefore I shall here bestow a Chapter upon this most serviceable Plant, and endeavour to persuade to its Propagation, by shewing the great Improvements that may be obtained by it, and that in a more particular Manner, than any Author whatsoever has heretofore done. Furz is the most common and cheapest Fuel, our *Hertfordshire* Commons afford, when got in dry. It burns very furiously at once Lighting, so that it may be truly said, that this, and Fern, burn the quickest of strong Fires, and is so much coveted, that at *Ivinghoe, Berkhamstead*, and many more Commons, they will

will not give it Time to grow above a Span long, before they cut it with their sweeping, destructive, two-handed Bills and Scythes ; contrary to which, in *Sussex* and *Norfolk*, they let their Furz (called here Whins) grow, like a Coppice-wood, eight or ten Feet high, before they cut it for Fuel off their sandy Grounds, which is certainly the best Husbandry ; for then the Stalks will become durable Firing, and, on several Occasions, supply the Place of Wood, or Coal. But Furzes, on our Commons, are imprudently cut all the Year to sell : In others, the Parishioners are stinted, and not suffered to cut them, but once in so many Years ; or, if every Year, at a certain Season, and then only so many Faggots to each House, as are sufficient, according to the By-laws of a Court-leet, or Court-baron ; by which the Furz has Time to acquire a tall, thick Head, to their great Increase and the People's Benefit, as it is annually observed on *Fritbesden* Common, near *Gad-desden*. In others, as on that of *Busby* Common, they are confined to use only one particular short cutting Bill ; for, where any Sort is used at Pleasure, they are ready to chop up Part of the very Roots, to the great Destruction of this serviceable Shrub. With us, several cut young Furz in the Summer-time, and hay it for Grinding it, as Tanners Bark is done, in order to give it as Manger-meat to Horses, for, by this Method, it is softened to their Mouths. Others think Furz so considerable an Improvement to some poor Sort of Land, that they plant it even in Inclosures, and cut it to great Profit once in three Years ; for this, in some good Ground, will pay three Shillings an Acre a Year ; will grow where hardly any Thing else will, and that in almost any Soil whatsoever, without any other Charge than Workmanship, as may be seen at *St. Margaret's*, in *Ivinghoe*

boe Parish, and in many other Places, notwithstanding the several Furz-commons, that lie in the adjacent Parts. Furz, indeed, may be cut all the Year; but, when they are cut young, in the Summer-time, they will be so weak, as hardly to prick your Fingers; which though too frequently done, yet is it a most wretched Piece of Husbandry, because they deprive themselves of much of the Quantity, they otherwise would have, had they a longer Growth; which is one Extreme: The other is, when they are let to remain to too great an Age, as seven, or more Years; for then they often die, where they stand, as I observed in my Progress through *Suffolk* and *Norfolk*, in the Year 1736. They are also killed by severe and long Frosts, as was experimentally proved in the very hard Winter and Spring Seasons, 1740, to the Detriment of many poor Families; for this Plant runs shallow in the Ground, and therefore so exposed to this Misfortune, that it was very difficult to cut an hundred Furzen Faggots, the following Summer, off that great Tract of Land, *Barkhamstead* Common. There is a wild Sort of Furz, that is small, and grows in Commons; and there is another Sort, called *French* Furz, that grows into a large tall Substance. Where the latter grows singly, and has Air enough round it, it will run up ten Feet high, in a deep Soil; but, where the Surface is shallow, not so big. If there be a Rock of Stone under a four-inch Staple of Mould, or if there be a red Clay under a thin Coat of loamy Earth, it will flourish; but it will not bear the Drip of Trees, for that often kills it. It is a common Way in some Places, where they rightly manage it, to cut one Parcel at four or five Years Growth; the next Year another of the same Age, and so on successively. If Horses, Cows, or Sheep are permitted to browse and crop its tender first Shoots, it will much re-

tard its Growth. It Seed is in its full Extent and Ripeness, the Beginning or about the latter End of *August*, which may be known by its Blackness, and easy Parting from its yellow Pods. Then it is they put on a Pair of strong Gloves, and strip off the Seeds with the Prickles about them, which they lay on a Blanket or Sheet; and the Furz-seed, by only the Heat of the Sun, will jump out of their Pods or Kids, and then may be separated by Sieving, Screening, Fanning, or otherwise. The Season for sowing Furz-seed is in *March* Broadcast, or in Drills very thinly in a fine Tith, so that each Plant may stand about a Foot, or eighteen Inches asunder: If the first Way, it may be harrowed in with Iron Tines, or with a Bush-harrow; if the second Way, a Drill may be made with the three-wheel Drill or Pulley-ploughs, double-breasted Plough, or with the *Hertfordshire* Wheat, or Pea-stitch Plough, or with the Hough, and covered with the Harrow or Hough. A third Way is, to raise a Bank four Feet high, and four or six broad; on the Top of which make one or two Drills at a Foot Distance, and sow your Seed thinly in the same; and, if it takes well, it will make an admirable profitable and secure Fence against Men, or Beasts, for here even Mr. Huntsman must ride about to follow his Chace, as may be perceived by that charming Furz-hedge, now growing on a sandy, loamy Bank, between *Warmer* and *Deal*, in *Kent*, which keeps the Corn and Grass in constant Safety, much beyond our common Wood-hedges. A fourth and last Way is, to pull or dig up young Furz-plants off a Common; or if you split them off their old Stalks, and plant them in a raised Bank, as it is making, one Row of them twelve or twenty Inches above the other, in the Spring, or in *October*, they will quickly grow and flourish.

flourish, provided you make a Ditch before them, and plant the Sets in the same Earth, as it was excellently well performed in a sandy Loam, lying between *Leighton* and *Wooburn*, in *Bedfordshire*, in the Year 1740. But, if you will destroy a Furz-plantation (which is very difficult to do) where the Ground is not too stony, and where Trees do not grow in the same, you may make Use of a strong Wheel or Foot-plough, with six, eight, or ten Horses to draw it, and it will cut up and eradicate most, or all of the Furz-roots; and, by repeating this Work one or two Summers at most, you may clear the Earth of them in the cheapest Manner, and thus prepare it for sowing Corn, or laying it down for Meadow; which to improve, the Roots, with some Mould over them, may be planted in small Parcels, and burnt to make Ashes, that will, if sown over the Seeds of Corn or Grass, so fertilize them, as to bring on a speedy, plentiful Growth. Furz is very profitable, when made into Faggots, and laid at the Bottom of Corn and Hay Mowsteads, because its Prickles will keep off the Harbour and Breed of Rats and Mice, and thereby preserve the Corn from the Damage of Damps, and from being eaten by great Numbers of these Vermin, which, to the small Farmer, in some Years, prove such a Pest, as to eat up great Part of his Wheat and Oats. Furz is likewise very valuable to Kiln-men for burning Bricks and Lime, which it will do rather better than Wood; accordingly, those about *Gaddesden* make a great Consumption, every Year, of this Plant, that employs a considerable Number of poor Men in the Cutting and Selling of it. This serves, in snowy Seasons, for the Cattle to browse on, for they can come at this, when Grass is covered; at other Times, in frosty Weather, they find a Bite under and about the

Furz, when no Grass is to be got elsewhere. In our Country, we generally make use of Furz to brew and wash with, and sometimes to lay over a Hovel Ridge-fashion, which, when a thin Coat of Straw is thatched on the same, will keep out Wind, and all Weather, a long Time. But I must here enter a Caution: That whereas Furz, when very dry, burns so quick and furious, that it is very dangerous to lay a great deal of it near a Fire-place, or where a Candle is commonly used: Of this a Landlord was so timorous, that he obliged his Tenant never to suffer a Furzen Faggot to be brought into his Inn, a large House on *Gaddeſden-Green*: And by woful Experience, I can say, that great Part of my Dwelling-house was burnt down, in the Year 2724, and also three of my Neighbours entirely consumed, by Means of a Spark jumping from a Smith's Anvil through a Crevice, among some Furz. But, as my House was fortunately insured in the *Sun-Fire-Office*, I suffered the less Damage. And now, to my own Account, I shall here add, what is inserted in Mr. *Houghton's* Collection, &c.

S I R,

I Have read over your *Collection*, N^o. I. and have taken Notice of the Enquiries, but more particularly about Meadows, where, among several Annoyances of Meadow or Pasture, you reckon Furzes or Gorse, which, I must confess, are, to a great many Lands, a very great Annoyance; but every Thing hath two Handles, or we have two Hands to take it by, and God made every Thing good, if we can but get the right Knack of using it: An Instance whereof I will give you, in this Plant. A Friend of mine had a very good Meadow, of about six Acres; but on one Side of it was a Hill, that was very sandy, and, every Time it rained hard,

hard, some of this Sand ran upon the Meadow, and would in Time, in all Probability, have overrun it. For this he was much concern'd; and when I was there, he asked my Advice, and, I did advise him to sow it with the Seeds of *French Furzes*, which he accordingly did, and the Effect was this: It fixed the Sand, and not only so, but once in four Years it was cut down, and yielded for to burn three Pounds an Acre. I must confess, it was in a Place where Wood was scarce and dear; but I am forward to believe, it would have been of good Advantage, in many other Places; and it is possible, in the sandy Lands of *Norfolk*. What I have here related, is a Story I know to be true; but I will also make bold to put you in Mind of what is said in *Systema Agriculturae*, about this Subject; and, because it is short, I will transcribe it: — Furzes, Brambles, &c. are very necessary for the Planting of dry Banks, where it is difficult to raise a better Fence; and, in those Places, they will maintain the Bank against any Cattle. Furzes are also sown on barren Land, and esteemed a considerable Improvement; the green Tops are good for Horses, the Pricklings thereof being taken away by Chopping. Thus far he. Moreover, I have a very good Friend in *Gloucestershire*, who, in such Land that his Neighbours (by Reason of a stony Ground, with a shallow Surface, and a Want of Shelter from raging Winds) can get no Hedges to grow in, hath brave ones, by sowing on the Outside of them these *French Furzes*, which shelter them both from Cattle and Winds. We may observe, that the large *French Furzes* may be killed, by cutting the woody Stalks within half a Foot of the Root in Summer-time, for they will not then spring again, like the small wild Furz, or Whins. — To this, I must add once more, that

that in *Chaffont* Parish, between *Uxbridge* and *Amersham*, there grew a common Hedge, next the Road, which, being frequently broke down by Drivers, proved a great Damage to the Tenant, by their Cattle's eating their Corn and Grass: This put a Gentleman, the Landlord, on an Invention, which was this: Just within-side of the Hedge, as close as he well could, he opened a narrow Drill, or Trench, and set it with Furz-plants, which quickly grew up, and fully answered his Design. Another Gentleman having inclosed a Piece of Ground, about three Miles from *Gaddesden*, and close to *Dunstable* Downs, by Quick-setting it, and making a Ditch before it: He made little Holes about a Foot asunder on the Brink of the Ditch, and put therein young Furz-plants, which prospered well, and defended his Quick, besides yielding a considerable Profit at Cutting-time. But here take Notice, that such young Furzen Sets, or Plants, can't well be drawn from off a Common, because the Ground is too much hardened by the Tread of Cattle; therefore, if there be any Woods near the Place, it is a Chance but some grow here, and then they may be easily pulled up; because such Ground is always loose and hollow. To conclude this long Account of Furz, Whins, or Gorse, I shall finish with what Mr. *Batty Langley* says, at Page 34, in his Book entitled, *A sure Method to improve Estates*, printed in the Year 1728. When we make Fences of Furz, we should make Use of the *French* Kind, which rises much higher than our *English* Kind. Furz must be sown in shallow Drills, upon the Summit of the Banks, very thinly, at one Foot Distance, each Drill from the other. Two Drills on a Bank are sufficient, and, when the young Seedlings come above Ground, they should be kept clear from Weeds, and singled out to above one Foot Distance in the Rows. Every Autumn they should

should be clipp'd, which causes them to thicken very much, and gives a pleasant Aspect. I cannot help recommending the Planting this Sort of Hedges, in our Wilderesses, and other Parts of the Garden; for, during the Season that they are in Blossom, which is a long Time, there's no Plant makes a finer Appearance; and besides, they are an admirable Covert for Game, as well as to draw Plenty of Birds (such as Linnets, Goldfinches, &c.) which build their Nests therein.

F I N I S.



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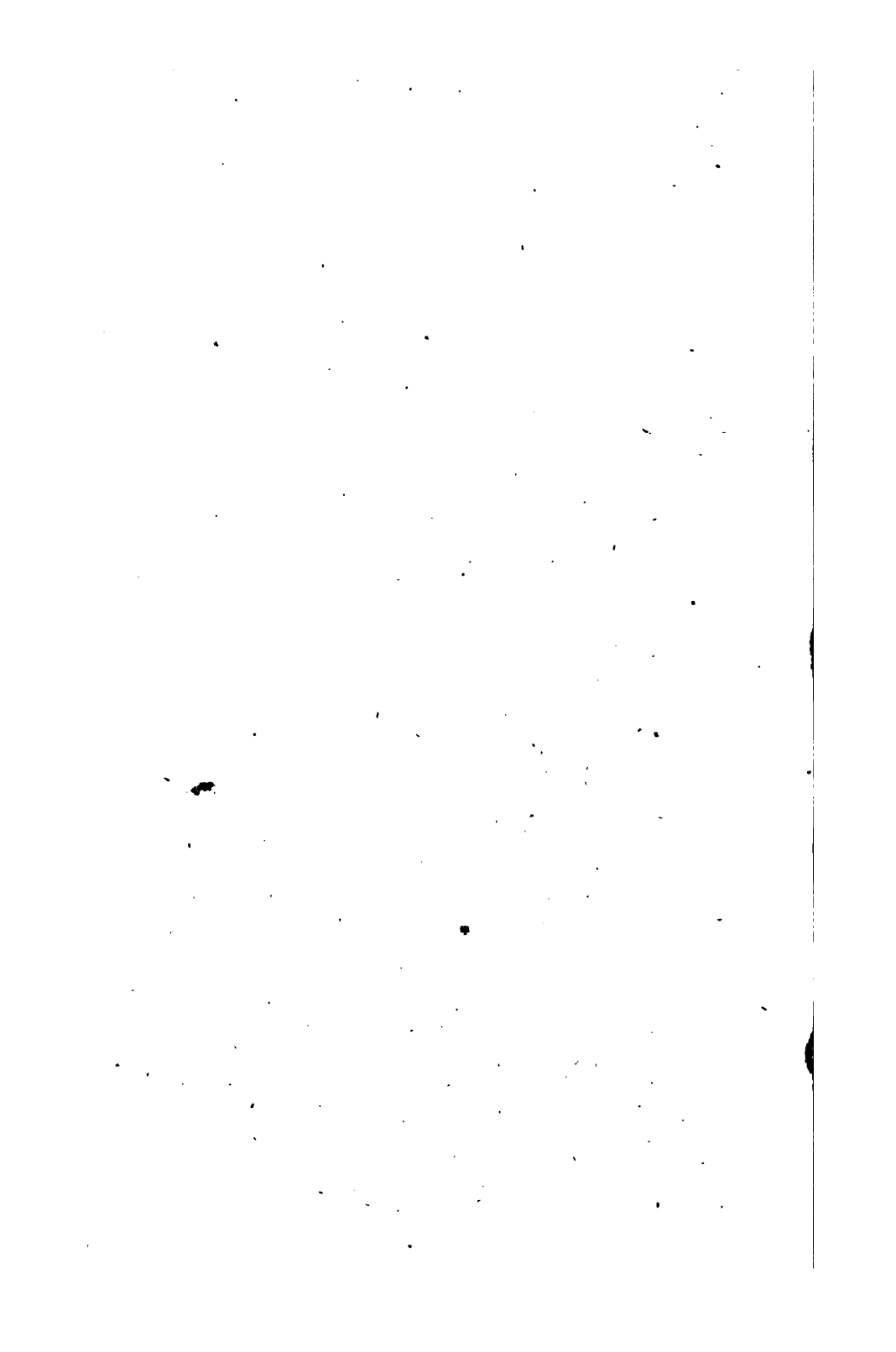
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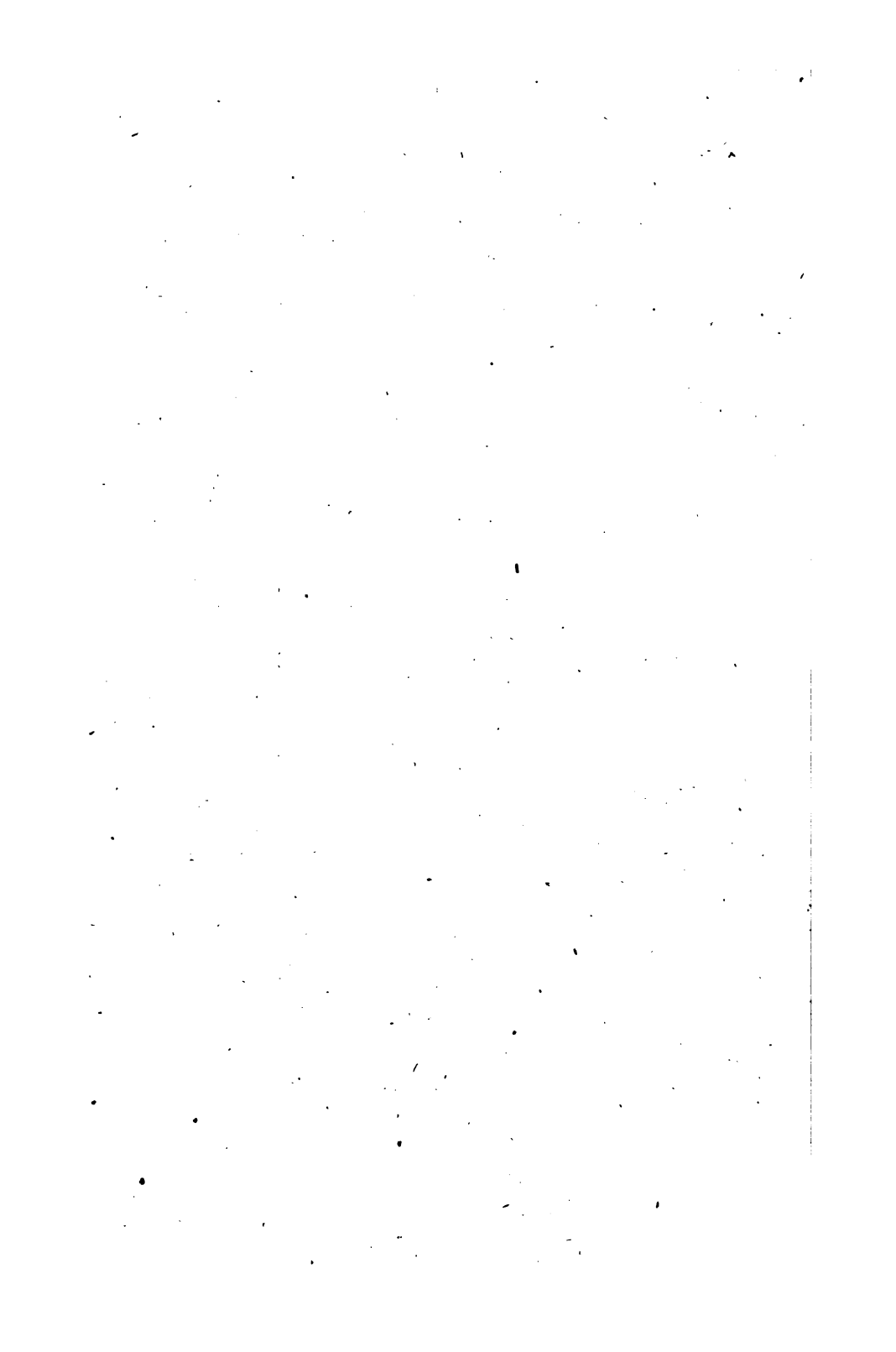
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